

American Artisan and Hardware Record

Sheet Metal - Roofing - Warm Air Furnaces - Stoves

Vol. 93, No. 7

CHICAGO, FEBRUARY 12, 1927

\$2.00 Per Year

Use HORSE HEAD ZINC

"It Sells Itself"

"People Ask for
it Voluntarily"

Read the letter from J. V.
McClaskey & Company—
then send for a sample.



This photograph shows an attractive Horse Head Zinc installation
done by J. V. McClaskey & Company in Youngstown, Ohio.

The New Jersey Zinc Company
160 Front Street - New York City

J. V. McCLASKEY & COMPANY

Roofing and Sheet Metal Work

WARM AIR FURNACES

12 IRVING PLACE

YOUNGSTOWN, OHIO

Address All Mail to Box 97
West Side P. O.

April 22nd, 1925

The J. M. & L. A. Osborn Co.,
Cleveland, Ohio.

Gentlemen:-

With reference to the use of Horse Head Zinc wish to state that
we have been using this material for the past five years. At first
it was difficult to sell it, but it has given such satisfactory
service that it is now selling itself to these contractors who have
been using it.

The situation now is that people who are acquainted with the
buildings where zinc is now on are asking for it voluntarily. This
is especially true in the case of asbestos roof work and other places
on a building where a metal stain would be objectionable.

It is our earnest opinion that any contractor who recommends
zinc metal work will benefit both himself and his customers.

Yours very truly,

J. V. McCLASKEY & CO.

Per *Wm. P. Gibbons*

New Jersey
zinc

THE NEW JERSEY ZINC COMPANY

160 Front Street - New York City

Please send me a sample of Horse Head Zinc
so that I can test its easy working qualities.

NAME _____

ADDRESS _____

2-A

At The End Of 1927

What Will Your Profits Be In Relation To Volume?

Jan | Feb | Mar | April | May | June | July | Aug | Sept | Oct | Nov | Dec

Careful Planning Is The
Foundation of Profitable
BUSINESS



12% Net Profit On Sales Volume

To those warm air heating contractors who will permit us to outline for them a complete plan for the entire year, and to those who will follow the plan, we can guarantee a net 12% margin of profit on their sales volume.

The Homer Dealer Franchise will net any progressive furnace dealer, who will use the Homer Dealer sales plan, 12% profit on sales. If this interests you, we invite you to write for details and evidence.

The HOMER GRAND Furnace possesses features which make it an easy seller and when this is coupled with the intelligent plan of presentation which accompanies every Homer Agency contract, you are assured of success, if efforts on your part are in keeping with the assistance which we give you.



HOMER FURNACE CO., Coldwater, Michigan, U. S. A.

Capacity over
30,000 Furnaces
Annually

*"What's home
without a Homer."*

*There's Harmony
in Homer Heated
Homes*

Are You Proud of The Furnace You Sell?

The SUPER-SMOKELESS Furnace is the only really smokeless furnace on the market. It brings satisfied customers and earns big profits.



CUTAWAY VIEW OF
SUPER-SMOKELESS FURNACE

DO you take pride in each and every furnace you install and feel sure that you are going to have a satisfied customer? If not, you should investigate the SUPER-SMOKELESS Furnace.

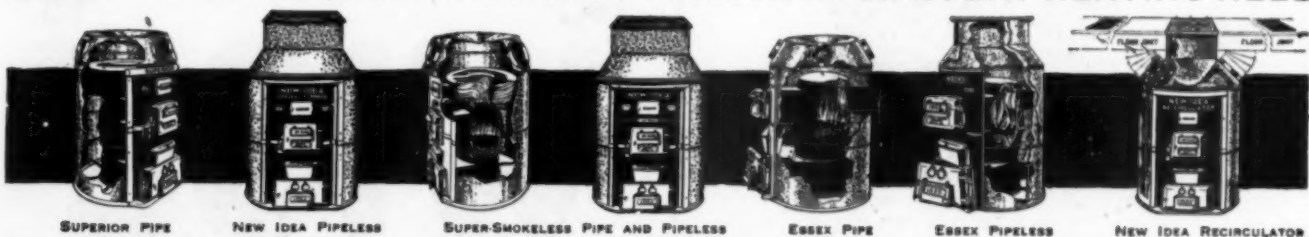
This furnace will burn soft or hard coal with the greatest efficiency. It burns completely the smoke and soot of soft coal, and utilizes every available heat unit in hard coal. Your customer will be more than pleased with the efficiency and economy of this furnace, and you will be able to secure a real price for your work.

It will pay you to look further into this remarkable furnace and see for yourself the advantages it offers. Write today for full information.

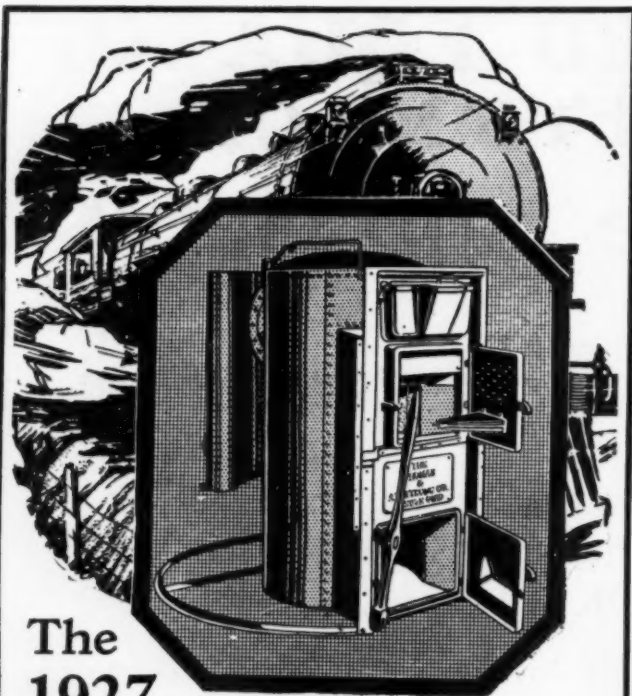
UTICA HEATER COMPANY

UTICA, N. Y. — CHICAGO, ILL. — MANUFACTURERS OF THE

CELEBRATED LINE OF WARM AIR FURNACES FOR EVERY HEATING NEED



Published Weekly by American Artisan and Hardware Record, Inc., 620 South Michigan Avenue, Chicago, Illinois.
Entered as Second Class Matter June 25, 1887, at the Post Office at Chicago, Illinois, under act of March 3, 1879.



The 1927 MONEY-MAKER

WILL be the dealer who stocks the Armstrong Boiler Plate furnace. It is gas, smoke and dust tight—and is cold riveted and welded. Handsome in appearance and quality built throughout—the Armstrong will create sales and profits for you.

Extra deep fire-pot—oversized, self-cleaning dome—extra heavy grate bars with outside shaker—and large radiator that gets every heat unit from every pound of coal.

No cement to use—no warps and cracks—practically one piece throughout. Quickly and easily installed—and requires minimum servicing. Guaranteed for years of dependable service.

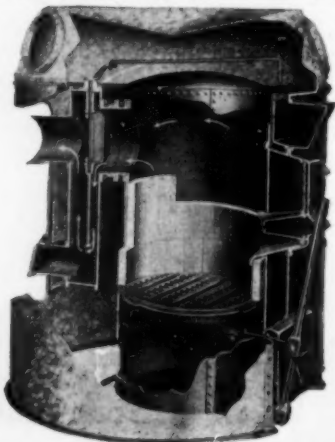
We have just completed three additions to our plant and are thoroughly equipped to give you prompt service at all times.

Write for catalog and special terms to responsible dealers

The Thomas & Armstrong Co.
London, Ohio

Authorized Distributors

Heating Supply Company	Pittsburgh, Pa.
Robinson Furnace Company	Chicago, Ill.
Stockhoff Supply Company	St. Louis, Mo.
Cincinnati Roofing Sheet Metal Co.	Cincinnati, Ohio
A. Y. McDonald Mfg. Company	Omaha, Neb.



A line of furnaces
you can sell at all
times—at a profit.

WISE furnaces keep up with the times—not only in design but in market conditions. WISE dealers never have to change their line—**QUALITY IS ALWAYS HIGH** and **PRICES ALWAYS RIGHT**.

WISE furnaces are just plain good first quality heating plants throughout—minus all fancy “frills.” WISE furnaces constitute a line of furnaces that you can build business with—making a satisfied customer and a handsome profit with each sale.

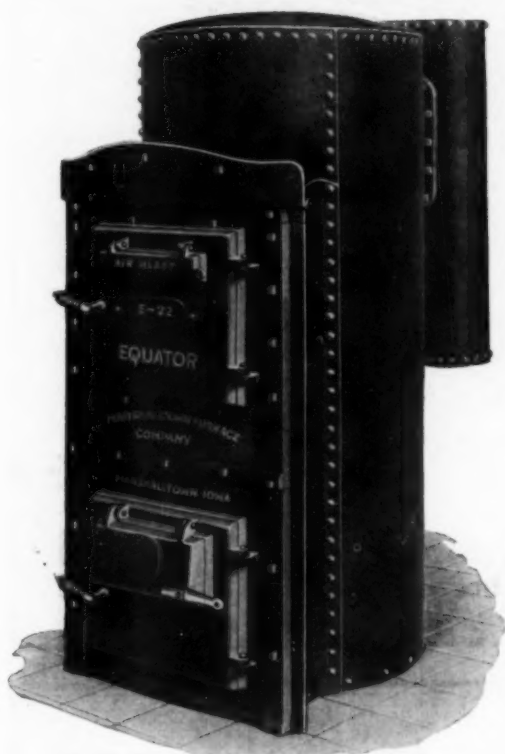
The WISE catalog goes into WISE construction details. You'll find it interesting because it describes a line of furnaces that has been breaking profit-making records for over twenty-five years. Write for your copy today.

The WISE FURNACE CO.
AKRON, OHIO

WISE
BACKED BY OVER TWENTY-FIVE YEARS'
EXPERIENCE IN MAKING GOOD FURNACES
WISE

The **LOW PRICED EQUATOR** **STEEL FURNACE**

DIRECT CHALLENGE FOR COMPETITION WORK!



\$56 and Gas Tight
*Less Quantity Discounts
Less Cash Discount*

Here is a very low priced
riveted gas tight steel furnace
for competition work

It is made of the same weights of heavy steel
plates that are used in our highest priced
quality furnaces.

It is not skinned in either material or work-
manship.

It will never leak gas at its joints for all seams
are riveted and cold welded absolutely gas
tight.

It has no cast iron fire bowl to crack and
cause replacement.

Contractors will all want it because their houses will
sell better with a Gas Tight Steel Furnace in them

It will command a better profit and costs you no more than
the inferior furnaces which you have been using for com-
petition work.

You need not be obligated to anyone for we will cash all
your time payment contracts at 92% of their face value.

We are the largest manufacturers of steel furnaces in the
world and we will warehouse completed furnaces for you so
as to insure delivery in the fall.

The Marshalltown Furnace Company is a subsidiary of ours

Lennox Furnace Company, Inc.

Marshalltown, Iowa

Syracuse, N. Y.

When writing mention AMERICAN ARTISAN—Thank you!

Typical of "AFCO" Strength

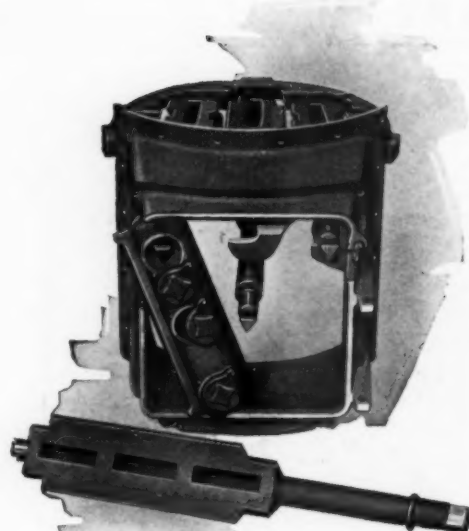
The heavy locomotive type grate pictured here is standard on all "AFCO" Boiler Plate Furnaces.

Note that each bar is triangular in shape and hollow in the middle. The three bars operate independent of each other so that ashes can be removed around the sides without wasting fuel through the center.

They crush clinkers easily. If necessary any one of the bars can be replaced in a few minutes without dumping the fire or the use of tools.

The extra strength of "AFCO" grates is typical of other features of "AFCO" construction.

*Ask for our booklet "Healthful Heating."
It describes and illustrates these features
fully. Write today—there is no obligation.*



Dept. 48

American Furnace Co. 2719-31 Morgan St. St. Louis, Mo.

Standard Dealers Know in Advance



9 styles and 47 sizes of steel and cast iron furnaces carried in stock at all times. Nowhere else can you find such a variety to select from.

They are sufficient to meet demands from all classes of trade.

THAT every buyer will become a Booster. The furnaces shown on this page have proven their ability to return dollar for dollar to the consumer in extra service rendered. Standard Dealers are also assured of real profits by our Dealer Plan, which is different.



Furnace Supplies, such as the following, are nationally known as the Standard of Comparison:

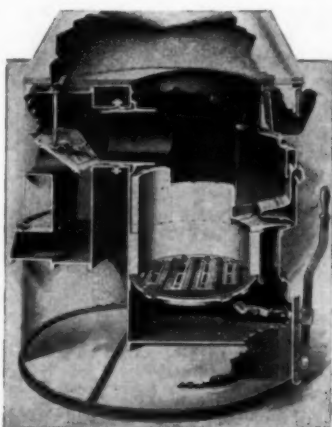
HANDY PIPE & FITTINGS
R I NO STREAK REGISTERS
H & C No. 170-No. 190 REGISTERS
STAN-CO REGISTERS
STEEL & SEMI STEEL REGISTERS
WISS SNIPS
PEXTO TOOLS

Everything needed by the Furnace Installer

STANDARD FURNACE & SUPPLY CO.
OMAHA, NEBR.

When writing mention AMERICAN ARTISAN—Thank you!

The Williamson BOILER PLATE FURNACE



In adding the Boiler Plate Furnace to its line, this company is merely extending into the steel furnace field the leadership which it has attained in the manufacture of cast furnaces.

The Williamson Boiler Plate has exclusive features which instantly remove it from the ordinary furnace of this type.

It is all-welded, making it permanently gas and dust tight. Dome made from copper-bearing, blue-annealed locomotive firebox steel—radiator made from Armco iron. Double baffle in radiator splits the hot gases into two streams so that all radiating surface is fully utilized—an exclusive feature. Hot-blast smoke-consumer in door and special vents in firebrick lining supply hot

oxygen directly over the flames, consuming all the heat elements in the fuel. Designed with the demands of the oil burner in mind, making it ideally adapted to any fuel.

Many other attractive features further emphasize the superiority of the Williamson Boiler Plate Furnace. New and interesting sales policy gladly submitted. Make sure of your territory NOW.

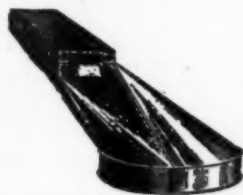
The Williamson Heater Co.
Cincinnati, Ohio



CHICAGO FURNACE PIPE AND FITTINGS



All
Sizes
and
Shapes



Made for Good and Quick Furnace Installations

CHICAGO Furnace Pipe and Fittings go together quickly on the job because they are made to fit accurately and stay together perfectly.

It comes in single or double of heavy high grade material in all standard sizes and practical shapes.

Chicago Furnace Pipe and our complete supply service have been the mainstay of thousands of dealers for over twenty years.

Try our service now. Write for Catalog
No. 22 and price list

CHICAGO FURNACE SUPPLY CO.
1276-78-80-82 Clybourn Ave. CHICAGO



Celebrated THATCHER TUBULAR Warm Air Furnace

YOU can assure your customers that the Celebrated Thatcher Tubular Furnace will deliver a generous supply of clean, healthful heat.

For the unique Tubular construction causes a rapid circulation of air through the tubes in the combustion chamber, and the air never becomes burnt or scorched, but retains all its natural life-giving qualities.

One-piece cast iron radiator renders escape of gas impossible. High ash pit prevents burning out of grates. Patented "Anti-Clinker" grates make it easy to free fire of ashes and clinkers. "Porcupine" fire pot insures a live and efficient fire.

Send for printed matter regarding the Celebrated Thatcher Tubular and other Thatcher products, and be sure to inquire about our liberal dealer proposition.

THE THATCHER COMPANY
Since 1850

CHICAGO
341 N. Clark St.

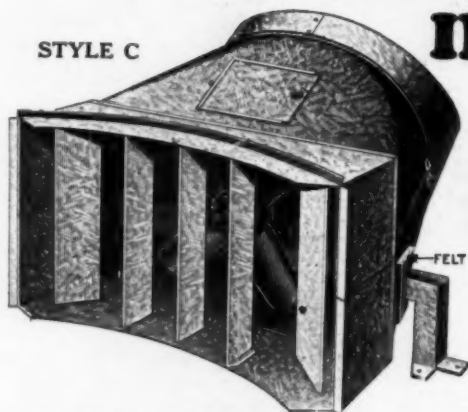
NEWARK, N. J.
39-41 St. Francis St.

NEW YORK
21 W. 44th St.

THATCHER

BOILERS-FURNACES-RANGES

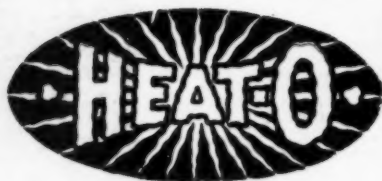
BIG REDUCTION IN FURNACE FAN PRICES



No. 24—1400 C. F. M.
600 inch Pipe Capacity
(Less Shoe)

\$39.50 Other sizes in
proportion.

EXTRA DISCOUNT IN QUANTITIES



THROUGH increased produc-
tion we are able to cut prices
below any ever offered before.
Rush your order for a sample
right away.

HEATING SYSTEMS & SUPPLY COMPANY
107 W. Van Buren Street CHICAGO, ILLINOIS



QUEEN FURNACES

for every room

IF YOU are conscientious—if you hold a positive interest in your own future business—if you have the wholehearted desire to entirely satisfy every customer—we would like to have you for our representative. Otherwise you would not be interested in our proposition open to a few.

Queen Furnaces have been designed with but one idea in mind—that of furnishing cheery warmth in EVERY room most efficiently. Such a furnace means positive satisfaction, building an everlasting business with big profits. Unless your installations heat every room your business will be short lived.

Far-seeing men are taking on our reputable heating unit because it fits in perfectly on every job, possesses several exclusive features, provides rapid circulation of air, is suitable to any fuel, guarantees long service by virtue of its fine construction and materials, provides perfect combustion of smoke and gasses, possesses efficient humidifier, flat or triangular interchangeable grates and a smoke pipe which can be removed at any angle.

Catalog, agency proposition and merchandising helps on request.

The Floral City Heater Co.
MONROE, MICHIGAN

1654 Monadnock Building, Chicago, Illinois

**PATTERNS FOR STOVES
AND HEATERS**
THE CLEVELAND CASTINGS PATTERN COMPANY
CLEVELAND, OHIO

PATTERNS

FOR STOVES AND HEATERS FIRST-CLASS
IN WOOD and IRON
VEDDER PATTERN WORKS ESTABLISHED 1835 TROY, N. Y.

**IRON AND WOOD
STOVE PATTERNS**
QUINCY PATTERN COMPANY
QUINCY, ILLINOIS

READ THE WANTS AND SALES
PAGES

BOOMER

THIS is our latest addition to the Boomer line. We heartily recommend it for your favorable consideration.

The severe tests we have given this furnace have proven its durability. The unsolicited reports we received from users last winter have been most flattering:

For durability, economy, easy to operate, easy to set up and the low price at which we offer this furnace, you will make no mistake in arranging for the agency.

THE HESS-SNYDER CO.
MASSILLON, OHIO

Makers of BOOMER FURNACES for Forty-Three Years



The Man Who'd "Walk a Mile for a Camel"

Yes, Mr. Furnace Dealer, that man will go several miles out of his way to buy a new Series "C" Moncrief Furnace. For when he knows all the good things he can get in the Series "C," improvements not found in any other furnace, do you think he is going to be satisfied with anything less? He is not.

—And if you sell the Series "C," will you get more furnace business? You will.

Write for the details.

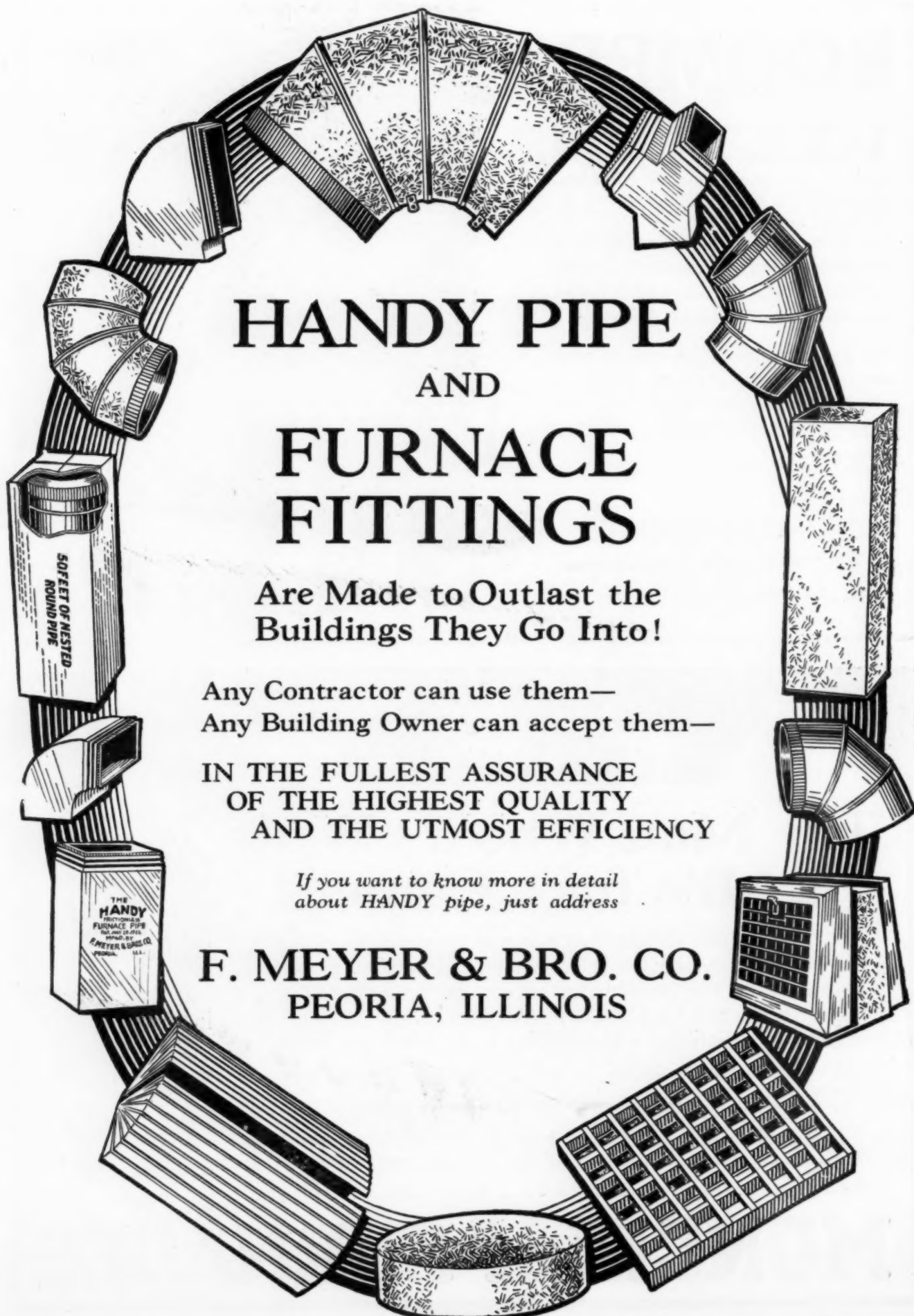
THE HENRY FURNACE & FOUNDRY CO.
3471 East 49th Street, CLEVELAND, OHIO

WE SUPPLY EVERYTHING USED ON A WARM AIR HEATING JOB



*The New
Series "C"*

MONCRIEF FURNACES



HANDY PIPE AND FURNACE FITTINGS

Are Made to Outlast the
Buildings They Go Into!

Any Contractor can use them—
Any Building Owner can accept them—

IN THE FULLEST ASSURANCE
OF THE HIGHEST QUALITY
AND THE UTMOST EFFICIENCY

*If you want to know more in detail
about HANDY pipe, just address*

F. MEYER & BRO. CO.
PEORIA, ILLINOIS



THE DISSATISFIED CUSTOMER

NOTE the intriguing portrait of the dissatisfied customer. With a face like that he

couldn't be anything but dissatisfied. Yet, he was not always that way. He deserves pity. He is just the victim of a trusting disposition—of a dealer whose good intentions went “to bad.”

How come? Just a little thing that shouldn't have happened. Some little pipe or fitting—some little accessory to the big job as a whole—had weakened or come apart. But it shouldn't have happened—and wouldn't have—if Mr. Dealer had realized that it's these little things that count—these little things which change so much sheet metal and iron

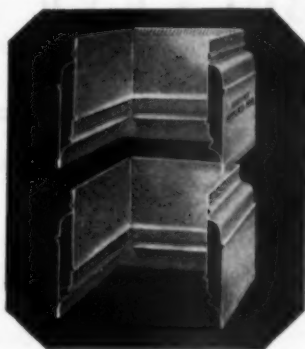
“All His Friends Will Know It; They in Turn Will Tell Their Friends”

no longer be a customer. He is dissatisfied. All his friends will know it. They, in turn, will tell their friends and so it will go. Good news travels fast. Bad news travels faster.

Standardize on Recognized Quality

This little difficulty would have been avoided by adhering to known quality.

Lamneck Simplified Pipe and Fittings are all that is claimed for them. Sturdy, true to gauge, snug fitting, quickly assembled. It is impossible for any individual or manufacturer to make them as good and sell them for a fraction of a penny less. Why not standardize on recognized quality and avoid dissatisfaction and “come backs?”



THE W. E. LAMNECK COMPANY, 416-432 Dublin Avenue, Columbus, Ohio

Western Representatives: THE QUICK FURNACE & SUPPLY CO., Des Moines

LAMNECK

**SIMPLIFIED
PIPE AND
FITTINGS**

Write for catalog and prices. Samples of any of our own manufactured products will be furnished on request.

Mention AMERICAN ARTISAN in your reply—Thank you!



WALWORTH CASING RINGS

Made of Steel

Guaranteed Exact Measurements and True Circles

Our long years of experience and modern equipment enable us to make these casing rings high grade in every respect and fully guarantee them.

Walworth Casing Rings are made to individual requirements and measurements, full circles for ordinary use and partial circles for full cast fronts. With lugs for Double Casing and without lugs for Single Casing. Write today for descriptive circular and prices.

Made by the makers of Walworth Double Gratings, Semi-Steel Registers, Ventilators, Borders, Side Wall and Base Board Registers

THE WALWORTH RUN FOUNDRY COMPANY

West 27th St. and N. Y. C. & St. L. R. R., Cleveland, O.

Distributors: ROBINSON FURNACE CO., Chicago, Ill.; HART MFG. COMPANY, Louisville, Ky.; PHILLIPS & BUTTORFF MFG. COMPANY, Nashville, Tenn. Eastern Representative: PENN TINSMITH'S SUPPLY CO., Philadelphia, Pa.



Asbestos Furnace Cement

A Plastic, Iron-Grey Cement for Furnaces,
Stoves, Ranges and Heaters

Economically priced—odorless—prevents all smoke, gas or odors escaping. Hardens like adamant. Air dries. Will not shrink, crumble, crack or become porous.

Write TODAY for Prices

THE BUCKEYE PRODUCTS CO.

Manufacturers of Special Cements for the Manufacturing Trade

7020 Carthage Ave.

Cincinnati, Ohio

WANTED!

Jobbing connections and salesmen to carry line.

**If It's Repairs For
STOVES, FURNACES
OR BOILERS—**

WE HAVE THEM

Send for Our Illustrated
Book of Order Blanks Today

**NORTH WESTERN CHICAGO
STOVE REPAIR CO. ILLINOIS**

"American Seal" FURNACE CEMENT

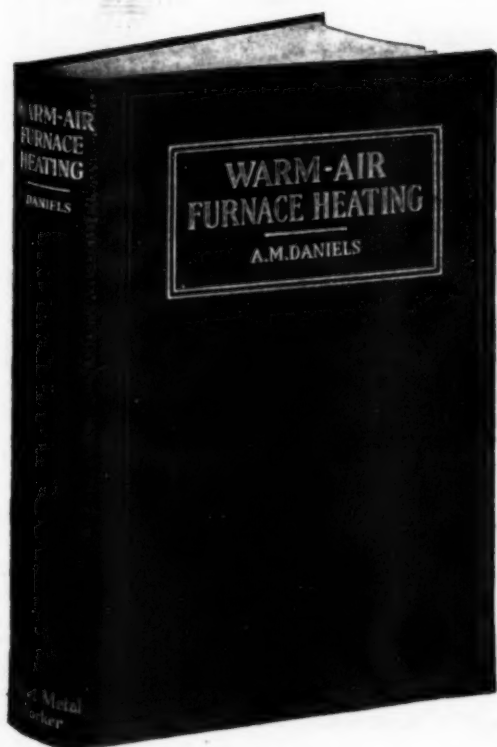
**Roof Cement — Stove Putty
Plumbers Putty**

PAINTS and SPECIALTIES

WILLIAM CONNORS PAINT MFG. CO.
TROY NEW YORK

Established 1852
JAMES L. PERKINS
Western Distributor
140 S. Dearborn St., Chicago, Ill.

A New Book



on Warm Air Heating by A. M. DANIELS

IT IS the book that thousands have been asking for—a book on Warm Air Furnace Heating that is UP-TO-DATE—a book that covers every phase of the subject giving exact data based on research work.

Here is the book that will enable both the experienced furnace man and the student to obtain a working knowledge of up-to-date scientific warm air furnace heating.

Read over the Chapter Headings—notice the complete treatment of the subject.

Many tables are included and some big labor savers in calculating pipe sizes—also many diagrams.

Chapter Headings

1. Historical.
2. Typical Gravity Pipe Warm-Air Heating Systems.
3. Types of Warm-Air Furnaces.
4. Details of Furnace Construction.
5. Heat Losses.
6. Effect of Register-Air Temperature, Leader Area and Size of Wall Stack Upon Heating Effect Produced.
7. Insulating Coverings and Their Effect Upon Leader and Wall Stack Operation.
8. Casing Diameter vs. Furnace Capacity.
9. Air Supply to Furnace.
10. Furnace Capacity and Rating.
11. Register Grilles vs. Plant Capacity.
12. Chimneys and Flues.
13. Humidity.
14. Evaporating Pans.
15. Combination Heating Systems—Warm Air and Hot Water.
16. Gas Warm-Air Heating.
17. Oil-Burning Warm-Air Heating.
18. One-Pipe Furnace Heating Including Modifications.
19. Hot-Water Supply.
20. Leader Pipe Sizes.
21. Forced-Air Furnace Heating.
22. Coal as Fuel.
23. Pipe and Fittings.
24. Warm-Air Registers and Cold-Air Faces.

500 pages, 7x9 inches

Bound in semi-flexible
imitation leather--

Stamped in gold--

PRICE \$5.00 POSTPAID

*Send in your
order today*

AMERICAN ARTISAN,
620 So. Michigan Ave., Chicago, Ill.

Enclosed find \$5.00 for which send me WARM AIR FURNACE HEATING by A. M. DANIELS, as soon as it is off the press.

Name.....

Street Number.....

Town..... State.....

Founded 1880

Published to serve
the
Warm Air Furnace,
Sheet Metal, Roofing
Stove and Hardware
Industries

American Artisan and Hardware Record

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AN ACHIEVEMENT

An explanatory note regarding service to readers of AMERICAN ARTISAN. This paper is now nearing the completion of a half century of service. For almost fifty years it has catered to the needs of the men in the industries which it represents. At no time during its long and successful career has AMERICAN ARTISAN been in a better position to render complete, adequate service to its readers than it is today. In addition to the matter contained in our regular weekly publication, we maintain Service Departments for the use of our readers. If you have a problem to solve, we courteously invite you to submit it to us for solution. In what better way can we learn of your problems than from you direct?

Armies of Oxwelded Tanks

In every industry where the storage of liquids is an important problem, welded tanks are used because they are ultimately more economical. The longer life, greater resistance to strain, and complete elimination of both leakage and maintenance, have been responsible for their popularity.

The field storage tanks in the petroleum oil fields, 10 ft. in diameter and 30 ft. high, are commonly welded. The long cylindrical storage tanks so

frequently used in the chemical and other process industries, gas station tanks and truck tanks are welded now, and most small complicated traps and fittings can be made simple and compact only by the oxy-acetylene process.

If you are not using oxwelded tanks and oxwelded equipment you should investigate the economies possible in construction, maintenance and replacement.

THE PREST-O-LITE COMPANY, Inc.

Unit of Union Carbide and Carbon Corporation

General Offices: Carbide and Carbon Bldg., 30 East 42d St., New York

31 PLANTS — 101 WAREHOUSES

Prest-O-Lite

DISSOLVED ACETYLENE



Mention AMERICAN ARTISAN in your reply—Thank you!

WATERBURY SEAMLESS FURNACE REG. U.S. PAT. OFF. PIPE OR PIPELESS

Everything Your Customers Want!



Permanently Clean Heat—The heaviest steel furnace made. Welded into one seamless sealed piece. No cast iron joints. No rivets. *The gas-tight furnace.*

Ample Humidity. The large, flat, shallow waterpan is placed in the hottest position, directly above the center of the combustion dome. This means (1) more moisture than any other furnace provides, (2) even distribution to all rooms. Has removable 2-gal. tank for easy filling. Fully automatic at slight extra cost.

Certainty of the Right Size. Every size Waterbury is designated by a metal plate showing the Standard Code capacity. The only furnace with a special size radiator for every size furnace. *No Waterbury has an undersized radiator.*

Complete Stocks
carried in
Philadelphia,
Pittsburgh,
Albany and
Kansas City

Sell folks what they want! Get this profitable agency. Waterbury dealers' sales in 1926 surpassed all previous records. Write today. This coupon will quickly bring you all the facts.

The Waterman-Waterbury Co.

1122 Jackson St., N. E.

Minneapolis, Minn.

Send me at once complete details about the Waterbury and your agency proposition.

Name.....

Address.....



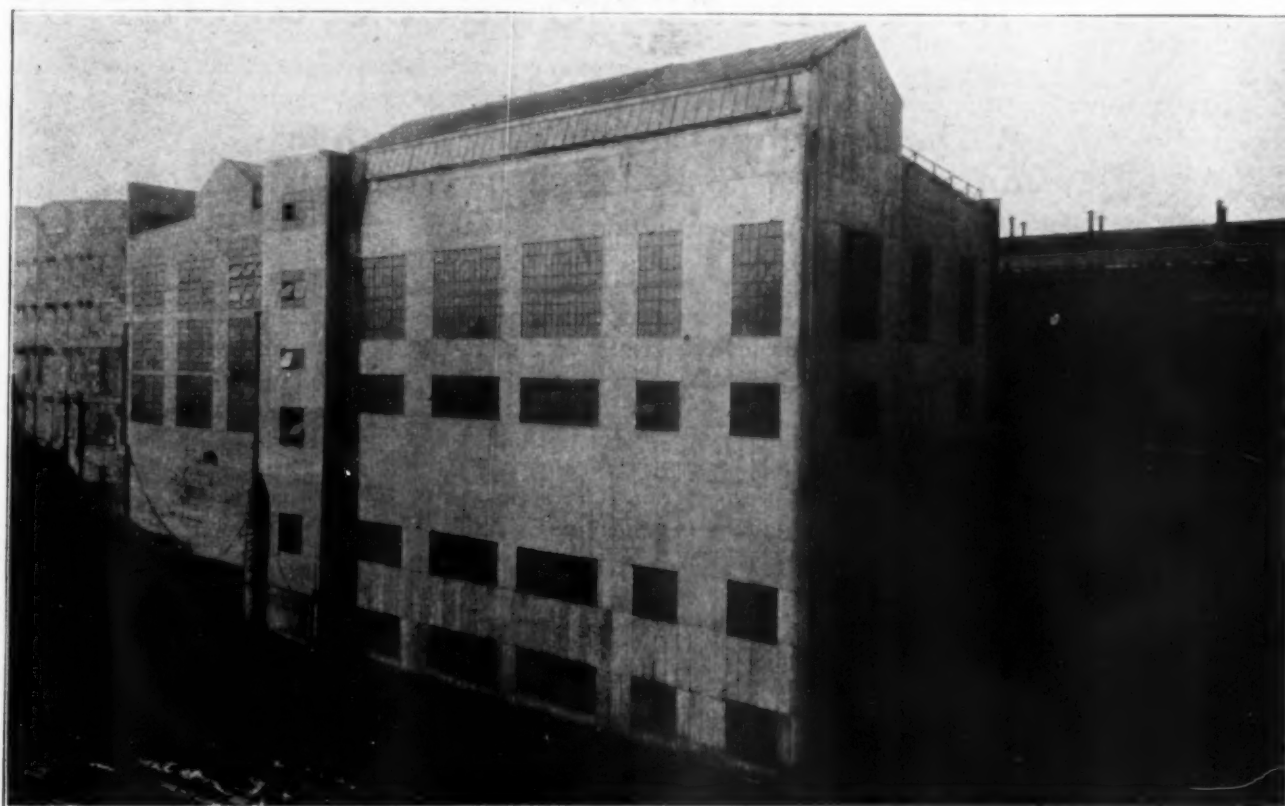
American Artisan and Hardware Record



Vol. 93.

CHICAGO, FEBRUARY 12, 1927

No. 7.



Lake Side Power Plant of the Milwaukee Electric Railway and Light Company, Milwaukee, Wisconsin, Equipped with Corrugated Galvanized Iron Sheets by the Consolidated Sheet Metal Works, Milwaukee

Galvanized Iron and Sheet Copper Protect Milwaukee Power Plant

Sheets Placed on Power Plant Temporarily Find Permanent Usefulness

SHEET metal again comes to the aid of the architect. The Milwaukee Electric Railway and Light Company were recently confronted with a problem of preparing for future expansion of its lake side power plant at Milwaukee. When the building was erected, it was desired so to leave the two sides in which expansion would take place if any, that that expansion of the building could be made without too much expense.

The architect, Fred Lubber, in casting about for a material with

which to accomplish his purpose, found galvanized iron sheets just the thing. So sheet steel was decided upon. The job of placing the sheets on the building was given to the Consolidated Sheet Metal Works, 661-677 Hubbard Street, Milwaukee. Speaking of the job, Mr. Walter C. Bogenberger, president of the Consolidated Sheet Metal Works, said:

"When the engineers of the company laid out their plans for the new boiler-house, they took particular precautions to do this in such a

way that future expansion of the size of the building could easily be taken care of in the most economical way. They decided that the two sides of the building which were open for additions should be lined with corrugated galvanized iron sheets.

"There were several reasons for this decision. First, it was the cheapest method of closing the sides of the building in a weather tight manner; second, it has a decidedly neat appearance; third, it is very easy to remove when the time comes

for an addition to the building; fourth, it is fireproof; fifth, when removed, a large portion can be re-used to good advantage.

"I should also like to call your at-

tention to the large skylight on the roof. Because of the fact that this part of the work is to be permanent, this skylight was fabricated of 16-ounce cold rolled sheet copper. All

of the material used on this job was furnished to us by the Milwaukee Corrugating Company."

Here's real inspiration for other sheet metal contractors.

The Profit Is Being Squeezed Out of Business

A Discussion of the Cause With a Suggestion for Remedying the Situation

By CHARLES F. ABBOTT, Institute of Steel Construction

IF YOU start exchanging confidences with almost any business man today, he will tell you that his sales are holding up satisfactorily, but that his profits are not what they should be. In fact, in many instances you will be told that there are no profits. Thousands of businesses in this country are operating without making a profit, or at a profit that is so small that it is negligible.

"There is no profit in my business," is the cry that is going up from every nook and cranny of business America. You hear it everywhere. To be sure, the fact that current business operations are not profitable is not heralded in the daily press as are the melons which a few of our great corporations have been cutting.

My friend, J. George Frederick, president of The Business Bourse, has recently compiled some figures based on the corporation income tax reports for the year 1924 of 417,421 corporations. This number, of course, includes all companies of any consequence in the country. Out of the total only 236,389 made a profit. The remaining 181,032 not only did not make a profit but showed an actual loss. The companies that were successful made a total profit of about seven and one-half billion dollars.

According to these figures, Mr. Frederick proves that business in the United States is only about 56 per cent efficient, if we are to judge money-making as the proper standard of efficiency. Mr. Frederick's

tabulations show that only 35.8 per cent of the concerns that are units of the country's great industries reported a profit.

In this article Mr. Abbott has clearly defined the causes of failure to make profits in any industry. He has shown how this failure is not the result of competition within the industry, but rather is due to the encroachments of industries which manufacture substitutes for the articles which any given industry may be engaged in manufacturing. The one and only way that such competition can be successfully combated is by association and cooperative advertising. Mr. Abbott points out that in practically every industry where external competition has been encountered it has been overcome by association for the purpose of protection. That is exactly where the sheet steel industry is today—fighting external competition. And how is the fight being carried on? By cooperative national advertising. — The Editor.

The fact that more than two hundred thousand corporations made a profit during 1924 may look as though American business during that year at least was anything but unprofitable. But it must be remembered that many of these 236,000 companies made only a very small

profit—just enough to get themselves included in the group of the successful organizations. Tens of thousands of corporations just barely made enough profit to escape getting into red ink.

Further, it should be noted, that the 417,421 concerns in question are corporations. There are at least a million small businesses in the United States not covered in Mr. Frederick's analysis. If these small businesses were audited, it would be found that not anywhere near fifty-six per cent of them were efficient from the money-making standpoint. Probably not more than ten per cent of them made money in proportion to the size and possibilities of their business.

Another thing to remember is that the figures we have been discussing are for the year 1924. Business during 1925 and 1926 was successful when viewed from the angle of sales, but it is the consensus of well informed persons that the net profits on these sales have been steadily declining during the last two years.

I am not posing as an alarmist. Business in this country is fundamentally sound. The opportunities for commercial achievement are greater today than they ever were. Business is now on a higher and more ethical plane than at any time in history. But there is something wrong when it is necessary for the average business to operate at a loss and when really substantial profits are made only by a few top-notch organizations in each industry.

What is the remedy for this condition? The best way to find a remedy is first to locate the cause of the condition. What, then, is the cause? Quite clearly it is competition. Why isn't the corner grocery making money?

And take the hardware dealer. He is suffering from competition. His competition does not necessarily come from other hardware stores. Rather does it come from department stores, five-and-ten-cent stores, sporting goods dealers, electrical appliance dealers, mail-order houses, house-to-house canvassers, and all that other myriad of competitors against which the hardware merchant is constantly contending.

Examine the conditions in any other line that you may care to mention. Take a manufacturing enterprise as an illustration. Unless the company under examination is one of the fortunate few that are making big profits, it will be found that the company we are looking into is being strangled by competition.

Well, then, what can we do about competition? It looks like a most serious difficulty. Offhand, it might seem that the only way to get rid of it would be to put a hundred thousand or so superfluous stores out of existence and to scrap the country's idle and unnecessary manufacturing capacity. For a time such a drastic remedy might give relief. If the business to be had were then divided among the very much smaller number of concerns in existence, there would probably be enough to enable them all to make a profit. It is likely, though, that this remedy would prove to be only temporary. After a time, these remaining concerns would find that the competition which had been bothering them still existed despite the fact that, as far as they are able to see, the source of the competition has been removed.

If business men would dig deeper, however, they would find that their serious competition does not as a rule come from inside their industries. The worst competition nearly always lies outside of the industry.

It comes from another industry making a product or offering a service that is being sold as a substitute for the product or the service that you are offering.

Thus the grocer's worst competition today is the public eating place. This is so true that in large cities many grocers have themselves started restaurants, or at least have lunch counters in their stores. Two such famous old grocery stores as Park & Tilford and Acker, Merrill

Although 200,000 corporations made a profit during the year 1924, this amounts to only 35.8 per cent of the firms in business who made a profit. In other words, these figures prove that business is only about 56 per cent efficient. These figures refer to what is known as big businesses. The small firms in the country are not taken into account in the analysis. If they had been, it would have been found that these smaller businesses are nowhere near 56 per cent efficient. Therefore to operate successfully a business requires not only attention to the business of giving the customer quality materials and workmanship, but it is a matter of watching overhead and making proper charges for it.—The Editor.

& Condit, both of New York, have taken this step.

Installment selling is another kind of outside competition that is hurting the grocer. So many persons are buying automobiles, radios, electric appliances, furniture, and even clothing, on the installment plan that they haven't much money left after paying their various installments each month. This means that they have to economize in other places.

These people are, on the average, well-to-do. They have money to spend, but they are spending it in the direction from which comes the most aggressive selling. Since the

automobile manufacturer sells more energetically than does the grocer, the automobile maker gets money that should be going to the grocer.

Now let us return to the manufacturer. He, too, thought he would do better when several of his competitors were removed, but he did not. Why? Simply because his so-called competitor was not his real competitor. Let us assume that this manufacturer had a shingle mill. Putting other shingle mills out of existence would not help him. His real competition is coming from other industries that are making the hundred and one different kinds of new roofing that have come into vogue in recent years.

Mr. Frederick's statement, to which I have alluded, helped to prove this contention that it is outside competition that is causing all of the trouble to which we have been referring. According to his analysis, two of the most profitable industries in the United States in 1924 were ice manufacturing and glove manufacturing; 71½ per cent of the concerns in the ice business made money that year and 70 per cent of those in the glove business made a profit during that same year. In 1924 the electric refrigerator had not made the strides that it has since. So the ice manufacturer was comparatively free from competition. People had to have ice. There was nothing to take its place.

Today the ice manufacturers find themselves hard pressed by the producers of electric refrigeration units. Within a period of three years the mechanical refrigerator has become sufficiently established to seriously interfere with their profits.

It is getting ready to eliminate waste and obsolete methods, to reduce costs to the consumer by more efficient operation and distribution, to push the sale of ice boxes, and to initiate a more widespread local and national advertising campaign. It is reported that \$150,000 has already been pledged, and that efforts are being made to increase the sum to \$200,000.

(To be continued)

Pattern Making for Woodworking Machine Hoods an Individual Problem

No Two Machines Have Exactly the Same Requirements—Designer Must Have Ingenuity

By O. W. KOTHE, Principal St. Louis Technical Institute

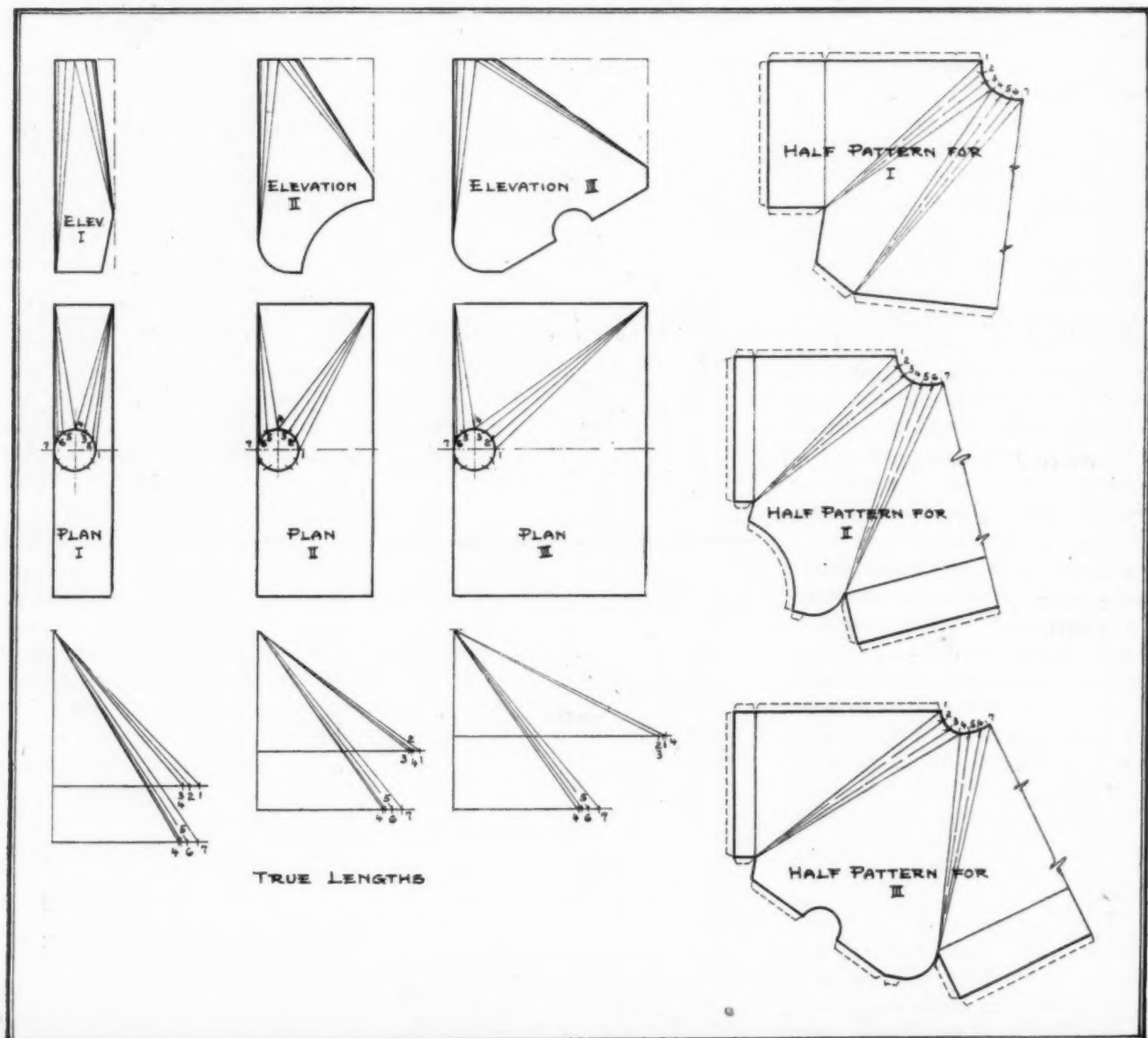
IN designing hoods for woodworking machines, as well as for emory wheel machines, the designer has a new problem with each type of machine. Thus in our case we have the hoods for sanding machines, where three different designs are used. The one shown in elevation I is very narrow and takes on principle of a square to round flat on one side. Here the bottom is cut on an

inch line to slightly extend over the drum or belt, whichever it is to fit on.

In elevation II we have a similar hood only with a bottom curve and of a greater projection which allows the air to be carried along a greater distance over the sander drum or belt, and so is more sure of taking off more dust.

In elevation III this idea is car-

ried still further, and it may be necessary for a particular type of machine. Each of these problems is based on a square to round and is worked out on that principle. Where the bottom is curved, as in case II and III, the tangent line is brought down to the top of the curve and the rest is merely added additionally. This gives two altitudes in our true lengths in each case.



Patterns for Woodworking Hoods

To lay out the pattern for elevation I, we pick the vertical heights and set them off in the true length diagram below as the altitude. Next with dividers pick the plan lines from the corners and place them in diagram, setting those for the back on the lower line and those for the front on the upper line and then when lines are drawn to the top, we have the true lengths.

The same procedure may be followed for elevation Number II and also number III, the only difference being some of the lines are of longer length owing to the greater projection of hood III than number I or II. But these things work themselves in according to the method used.

To set out the pattern we can start from the heel and work toward the front, much the same as for any square to round and just simply add the portions that lines do not develop. By close comparison of the different patterns with the elevation the general method will readily show itself, and so further comment

In providing sheet metal dust removing or protective devices for woodworking machinery, the designer is confronted with unique problem in each instance, as the type of cutting, grinding and polishing tools in use in the different factories are always peculiar to the type of work that is being done. For this reason the sheet metal designer who wishes to succeed must endeavor to develop originality sufficient to encompass every possible need that may develop. By so doing he can go into a mans' factory, analyze the requirements for protecting the workers—both as to general health and injury—and in that get business for himself without having to meet competition.—The Editor.

is not needed. Edges must always be allowed extra, since all development of work is net.

why you've got to watch them so closely. In the big shops they may have as many as thirty different items to overhead—interest on capital, depreciation on machinery,



Sheet Metal Dan

Sheet Metal Dan Shows Why Figuring Overhead Correctly Is Important

Records of Last Year Give Clues to Correct Rate Per Man Per Hour of Overhead to Charge

FAILURE to take proper account of overhead expense is one of the primary causes of vanishing profits. Sheet Metal Dan, of the Distributors' and Salesmen's Auxiliary to the Sheet Metal Contractors' Association of Pennsylvania, has considerable to say about "Overhead" expense and how to get it into the bid which you submit to the general contractor or owner.

In this, the fourth of a series of articles which Sheet Metal Dan is writing for the benefit of the members of the Pennsylvania Association, he tells why it is important to figure overhead. The first three dealt with "Setting Up in Business," "Figuring a Fair Profit," and a "Salary for the Boss."

Sheet Metal Dan says about

overhead: "The man who's got his shop in the cellar of his house tells you he don't have to figure overhead. That same fellow is generally running his business into the ground.

"Every business has got overhead in one way or another. You can't get away from overhead in business; and so, the smart thing to do is to take account of it. When you understand overhead, you've got it licked. Understanding all about your business is the best way I know to make it pay.

"What they call overhead takes in all such things as rent, salary for the owner, insurance and taxes—indirect expenses that go on whether you've got any business in the shop or not. That's the reason

loss on bad accounts and so on. Smaller concerns don't have so many, but every sheet metal business—I don't care whether it's in a cellar or not—has got gas and heat bills to pay for, postage and all that sort of thing. You see what I mean. After all, any contractor can easily figure them out for himself.

"After he's got them figured out he can pretty well tell what each one is going to amount to for the coming year. For one thing, he's got last year's books to go by. And when he's got them all figured out and added up, he ought to have a pretty good idea of what his overhead expense for the next twelve months is going to be. Dividing this by 52—the number of weeks in a year—gives him his overhead charge per week.

"Every job that goes out of the shop ought to bear its share of the year's overhead expense. That's the only sure way to provide for overhead. It isn't enough to figure on direct labor and cost of materials alone, and then throw in a certain percentage of overhead. A good way is to distribute overhead according to the number of hours of labor spent on the job.

"Every hour of a man's time spent on a job represents a certain amount of overhead. That's how you tell how much overhead to charge for the job. If you've got the rate of overhead per man per hour, then all you've got to do is to multiply this rate by the number of man-hours you figure the job will take, and that gives you the over-

head charge for that job.

"This method of figuring overhead may not quite fit your case. But the Sheet Metal Contractors' Association of Pennsylvania could tell you the right method in a minute if you belonged."

In Sheet Metal Dan's next talk he will tell "Why He Laid Off a Big Job."

Automobile Radiator Repairing to Be Profitable Must Be Planned

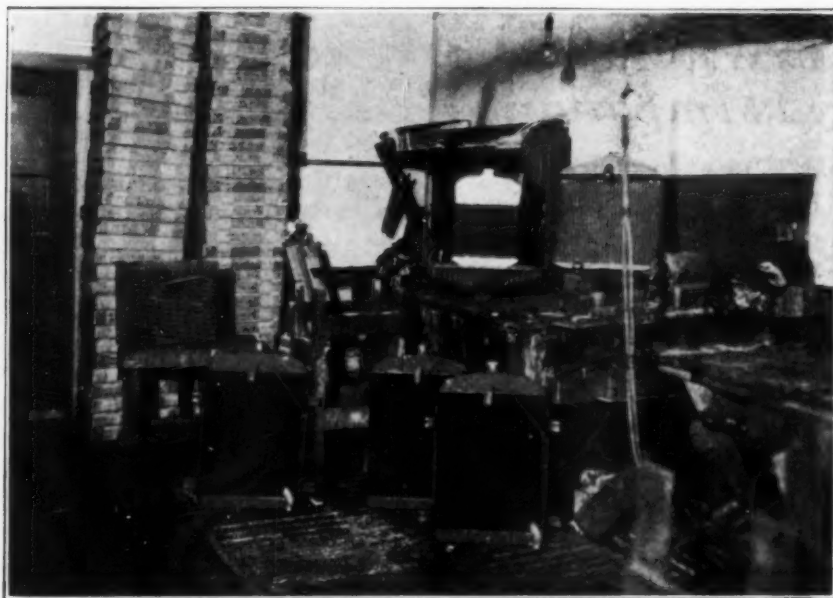
Facilities Must Be So Placed As to Save Worker's Time and Energy

By P. H. NICHOLS, Auto Radiator Repair Specialty Co.

I WANT to continue the discussion where I left off in the article in AMERICAN ARTISAN of January 22, 1927, on equipment for radiator repair shops.

In the foreground of the accompanying photograph is shown a 4x4-foot steel tank twelve inches deep. This is used as a combination tank and work bench that will serve the

When it is necessary to test a radiator, the cover is raised and a $\frac{3}{4}$ x8-inch board is placed across the front of the tank. This board acts as a plate upon which the radiator can be slid in and out of the tank with ease. Then when occasion arises for the use of the bench again, the board is removed and the lid closed.



Radiator Repair Shop of P. H. Nichols

purpose very well where the repair shop is small.

The combination bench tank has a cover fastened with strap hinges. These hinges are bolted to the back of the tank and cover and permit the tank being covered for use as a work bench.

At the right in the illustration you will note a firepot bolted to a $\frac{3}{4}$ x8-inch board, which has been fastened securely to the testing tank. In front of the fire pot are three acid jars set into a heavy copper 6x8-inch pan. The object of having these jars in the pan is to safeguard

against having the acids or dip splashings getting into the testing water in the tank. This also protects the wooden shelf and cover from the corrosive effects of the acids.

Under the firepot shelf you will note several small boxes fastened to the testing tank. One box contains a set of testing plugs; another pliers, center punch, testing tube for cores, honeycomb, cell wires, screw drivers, petcock and scratch brush. The third, and smallest of the boxes, contains wire solder sufficient for about one day's work. This box is protected by the upper shelf from the acid or drip splashings so that it does not tarnish. Solder that is tarnished will not do for honeycomb cell repairing.

On the top of the work bench there is seen a Ford radiator just assembled. We have a special box, 8x14 inches and 6 inches deep, with a $\frac{3}{4}$ x4-inch board, 16 inches long, nailed to the back of it. The purpose of this box is to support any radiator at the proper angle so that the core can be soldered to the top and bottom.

To the left of the steel tank are placed three mains—gas, air and an air line for testing. A medium-sized blow torch is attached to two of these lines.

The vice bench size is 2x6 feet regular height, with a shelf 27 inches high. On this shelf there hang large size clamps; in fact, all sizes, together with hack saws, mallets, anchorage hooks, core cutting knives, core cutting saws, metal dollies and a drawer in the center of the front plate containing large-sized tools ordinarily required in any up-to-date radiator shop. The workmen at this bench have an independent radiator stand, some of which will be as large as the testing tank shown in the illustration of the article in the January 22nd issue of AMERICAN ARTISAN.

Next to the wall is placed a stand of cartons containing radiator cores. In front of these you will note a bench 22x32x24 inches. On this bench the cores are cut to any desired length of height. It is used

when soldering strips on the cores preparatory to testing the latter. It is also used when removing the cast iron tanks from large trucks or tractors, as these usually contain a large number of bolts and require considerable work to remove.

We have a padded top made $\frac{3}{4} \times 26 \times 32$ inches with strips $\frac{3}{4} \times 4$ inches to straddle the four corner posts of the radiator stand. The purpose of this pad is to provide a soft place upon which the shell of the radiator can be laid when removing the radiator and preventing the nickle-plated shell from becoming scattered or disfigured.

By thus placing every facility within easy reach of the radiator repair man, the latter can speed up his work considerably without sacrifice of quality work. That is where the saving comes in.

Our men assemble two Ford radiators complete in one hour. This same production obtains on Chevrolets, Dodges, Oldsmobiles, Oaklands and others of equal size. We require

45 minutes to recore the radiators of Buicks, Pontiacs, Auburns and others of the same size.

We compute all of our productive labor time so that we can arrive at our sales and deduct our overhead. Each day's business is checked each night. Wherever we run into obstacles that slow up production we devise some way of quickly getting around them. Then, too, this method enables us to more accurately quote on repairing, recoring and rebuilding radiators.

I hasten to explain that the little white model radiator resting upon the top of the work bench is a small model radiator which is used for demonstrating a blower—an invention of the Reliable Auto Radiator Specialty Company—for cleaning purposes. This little device shows our customers how we get the boiling action in all of the cells of the radiator. This little demonstrator has so increased our radiator cleaning business to new and unthought of proportions.

Up come the buckets loaded with sand and gravel. They are carried up the incline and emptied into a rotary screen for grading. The sand is sifted out and the gravel is sorted according to size into barges alongside. The task of bringing the material to the surface is handled by a powerful 175-horsepower steam engine.

The known resistance of commercially pure iron to the corrosive effect of coal smoke and water caused the builders to specify this material for the cabins. Commercially pure iron will stand rust for years.

The cabins are very strong, because they are made of 22 and 24-gage corrugated metal, galvanized.

About 10,000 pounds of this iron was used for roofing, and siding, ridge roll, strap iron, rivets, nails, and flashing.

The dimensions of the various cabins are: Two engine cabins, 49 feet long by 10 feet wide by 8 feet high at eaves; one boiler cabin, 37 feet long by 27 feet wide by 11 feet high at eaves; one control cabin, 8 feet long by 8 feet wide by 7 feet high at eaves.

The size of the hull is 120 feet by 28 feet by 5 feet molded.

The weight of the dredge is 315 tons gross when operating, allowing 32 tons for water and material. The net weight is about 283 tons.

If you know of other instances where sheet metal has been successfully used to replace wood, give us the details and pictures—snapshots will answer—and we will bring to the attention of the trade and public.

Sheet Metal Replacing Wood on Sand Dredge Cabins

Allegheny River Sand Corporation Finds Sheet Metal More Economical Than Wood

By H. F. COPE

IN the construction of river dredges sheet metal bids fair to replace wood, of which the old-fashioned cabins were formerly built, because of the anti-rust and fireproofness of the galvanized sheet metal.

Lifting sand and gravel for man's industrial uses at the rate of three tons a minute—that's the task of a large sand and gravel dredge of the Allegheny River Sand Corporation near Mahoning, Pennsylvania, just north of Kittanning, Pennsylvania.

With a capacity of three tons a minute or almost 200 tons an hour, this metal dredge can bring up in a short time enough sand and gravel to build a city skyscraper. And it is usually first quality material because of the fact that most river

sand is free from loam and, therefore, needs no washing.

A long talon-like ladder dredge reaches down into the river and brings the material to the surface. It can be lowered by the boom to a depth of 37 feet.



Three Tons of Sand and Gravel a Minute Is the Capacity of This Dredge, Built With Armco Ingot Iron Roofing and Siding by the Midland Barge Company

Ohio Sheet Metal Men Have Rousing Program Prepared

Educational and Entertainment Features Unsurpassed, Says Convention Committee

THE secretary of the Ohio Sheet Metal Contractors' Association has sent out an urgent appeal to sheet metal contractors both in and outside of the state of Ohio, asking them to attend the annual convention of the association, to be held at the Neil House, Columbus, February 23, 24 and 25, 1927. In making this appeal the secretary says:

"This meeting will be of lasting benefit to you in your business. Not a pleasure trip, but give you something that is necessary to your business if you want to keep abreast of the intensive idea we are going to put forth in the sheet metal industry.

"The uses of sheet metal are increasing with great strides. We want to increase the use of it. We want to get more money for our work. We want co-operation, not competition. Lifting up, not dragging down. Quality, not price alone.

"Even though you are not a member of our association, we invite you with sincere cordiality.

"If you are a dealer in furnaces, it is the chance of a lifetime to get constructive ideas, as our furnace session will give you much information, a model showing the proper method of installing furnaces according to the Code. This program is the result of months of study by A. P. Lamneck, who has outlined a course that will send everyone home, who attends, with many things to think about. Every session a wonderful help!

"Read the program through several times. You just can't fail to benefit by taking advantage of this instructive educational convention. The object and plans are to give the greatest of all sessions ever held by any association.

"For the ladies of your family a most enjoyable program has been

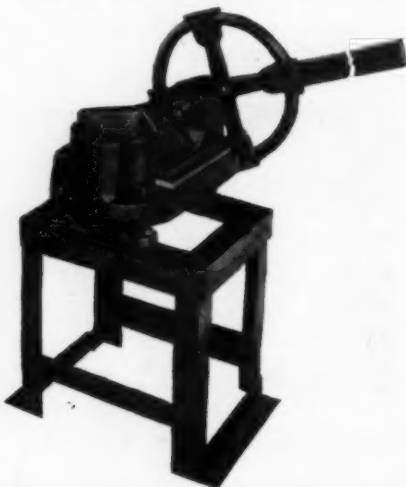
prepared. We feel they should have a part in this convention. Note in the program the ladies' entertainment. Personally conducted trip through penitentiary. Extraordinary musical event. Humorous lecture. Second day, theater party at one of the finest theaters in America.

"Special entertainment by Salesmen's Auxiliary. You would not miss it if you knew the salesmen. Always do things fine. Third day, shopping and inspection tour through Lazarus Department Store. Model display and luncheon. The day will conclude with a banquet you can talk about for many days; all will be crowned with a magnificent dance, finest orchestra in city.

"Come and meet and shake hands with each other, best lot of fellows in the world."

The Whitney Metal Tool Company Has New Products on Market

The Whitney Metal Tool Company, Rockford, Illinois, have just placed some new tools on the market, namely: The Number 60 Angle Iron Mitre Notcher and the Number 61 Angle Iron Bender which have a capacity of 3x3x $\frac{3}{8}$ -inch angle iron or smaller.



The Bender

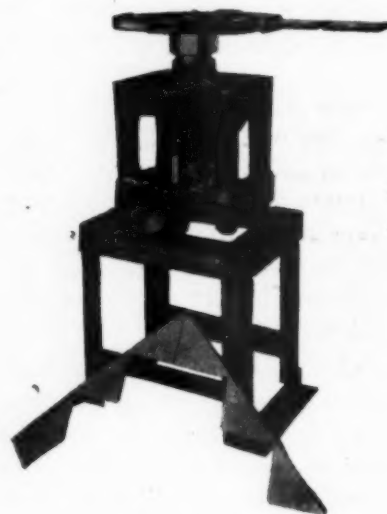
Each of these units are furnished complete with a stand, and a hand wheel which greatly aids production.



The Punch

The Bender not only bends angle iron, but by means of special jaws will bend pipes, flats, rounds, T-Iron, etc.

The Number 16 Bench punch which has a capacity of $\frac{3}{8}$ -inch hole through $\frac{1}{4}$ -inch material can be furnished with or without the worktable



The Notcher

and makes an ideal tool for the shop. The operator works in front of the machine.

The Whitney Metal Tool Company will be glad to mail literature on any or all of these machines upon request.

Here's Correction for Down Draft Chimney Trouble

And here's a little aid on the low chimney problem which comes from the sunny south. It comes from E. W. Hiatt, Box 1703, Sarasota, Florida.

To AMERICAN ARTISAN:

Having noticed some discussion in AMERICAN ARTISAN regarding

tractors' Association of Pennsylvania:

"To AMERICAN ARTISAN:

"In looking over my copy of AMERICAN ARTISAN this morning, I could not refrain from writing you to express my sincere appreciation for the splendid manner in which your staff has helped solve a problem in connection with our 'Sheet Metal Dan' membership campaign,



E. W. Hiatt's Remedy for Down Draft

corrections for smoking flues and chimneys, I am sending a photo of the correction I apply down here in the land of sunshine and perpetual summer.

Some of the fireplace chimneys are so low that a strong wind causes them to have a down draft, which, of course, smokes the house all up. I have installed a number of these triple tees for stacks and they do the business. The pipe is twelve inches in diameter. In the background is seen a small cocoanut palm tree.

E. W. HIATT.

Sarasota, Fla.

How We Help State Secretaries Out of Many Difficulties

That AMERICAN ARTISAN is helping the secretaries of the local and state sheet metal contractors' associations with many of their problems is evidenced by the following letter from Mr. W. F. Angermeyer, secretary of the Sheet Metal Con-

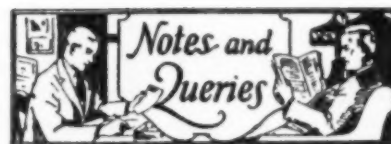
i. e., how to bring the matter to the attention of our non-attendant members and salesmen who were not familiar with our plans. Our fear was that a non-member might ask a member who was not familiar with it, and receive a discouraging 'I don't know' answer, causing our efforts to fall flat or, in other words, result in a useless waste of money.

"You have, by publishing each pamphlet and commenting on it, brought our campaign to the attention of all sheet metal contractors in a manner that cannot fail to bring results.

"For myself and our membership please accept our sincere thanks for your splendid coöperation."

* * *

If you are a state or local secretary with a similar problem, let AMERICAN ARTISAN help you, or if you are a sheet metal contractor or warm air furnace installer with a problem, give us a chance to assist you in solving it.



Iron Stairways for Fire Escapes

From Louis Magin, 106 Rockton Avenue, Rockford, Illinois.

Please advise who makes outside iron stairways for fire escapes.

Ans.—Central Iron Works, 939 West Lake Street; Enos Fire Escape Company, 522 North Sangamon, and F. P. Smith Wire and Iron Works, all of Chicago, Illinois.

Repairs for "Black Diamond" Furnace

From F. J. Wood, 165½ Main Street, Ashtabula, Ohio.

Kindly advise who took over the "Black Diamond" furnace and where we can secure repair parts for same.

Ans.—The "Black Diamond" furnace was taken over by the Maple City Foundry Company, Monmouth, Illinois, and repair parts may be secured from the Northwestern Stove Repair Company, 662 West Roosevelt Road, Chicago, Illinois.

Sheet Nickel

From C. Arthur Roy, 383 East Third Street, Corning, New York.

Where can I purchase sheet nickel, 24 by 78 inches, in 26 or 28 gauge?

Ans.—Whitehead Metal Products Company, 304 Hudson Street, New York City.

Aluminum Solder

From George W. Johnston, Franklin Grove, Illinois.

Please advise who makes solder that will work on aluminum with a soldering copper.

Ans.—Ziener Aluminum Solder Company, Rockford, Illinois, and L. B. Allen Company, 4519 North Lincoln Street, Chicago, Illinois.

Copper or Galvanized Hot Tamale Can with Gasoline Burner Attachment

From Charles Houghton, 1412 Deming Street, Terre Haute, Indiana.

Where can I purchase a copper or galvanized hot tamale can with gasoline burner attachment?

Ans.—Albert Pick and Company, 212 West Randolph Street, Chicago, Illinois.

Random Notes and Sketches

By Sidney Arnold

"The essence of humor is sensibility; warm, tender fellow-feeling with all forms of existence."—Carlyle.

Here's one on W. C. Markle, secretary of the National Association of Sheet Metal Contractors. You know, Mr. Markle is a conversationalist par excellence. He knows his onions and has a great diversity of knowledge.

A short time ago Mr. Markle was at a dinner party. Ladies were present and on his right sat a beautiful creature in a gorgeous evening gown.

"Are you fond of the theater?" began Mr. Markle. "Yes," came the reply.

"Have you seen (naming popular play)?" proceeded Mr. Markle. "Yes," returned the B. C. (Slight pause in the conversation.)

"Have you enjoyed many of the operas this season?" Mr. Markle tried again. "Yes," came the terse response. (Another pause slightly more prolonged than the last one.)

"Are you interested in golf?" Mr. Markle tried again. "Yes," came the inevitable reply.

Two or three similar leaders, on radio, hockey, motoring, dancing, with increasingly prolonged silences between, with the same result.

Finally, in inward despair, Mr. Markle made one last desperate lunge, "Just what are you interested in?" queried he. "Talking," replied the beautiful creature.

* * *

Frank X. Reinick, Madison, Wisconsin, and Daniel Webster differ slightly on their definitions of a diplomat.

Webster defines a diplomat as "One employed or skilled in international affairs."

Frank's definition of a diplomat is a Wisconsin sheet metal contractor who can enter a Wisconsin Sheet Metal Contractors' Association convention banquet wearing white spats and carrying a cane without getting the razz from the members present of the Travelers' Auxiliary.

If you were to ask my opinion about it, I should say that our friend, D. Webster, was only about twenty years behind Frank, nor did he have the latter's fine sense of humor.

* * *

That's a Lot of Bunk

A traffic expert in New York, in speaking of traffic jams abroad, says that the London drivers and chauffeurs enliven many an occasion by their wit and sarcasm. One London driver drew up, when he saw a pedestrian directly in his way, and leaned over and very politely inquired: "I say, sir, may I awsk what are your plans?"

* * *

Joe Mattingly, of Indianapolis, has a little daughter who keeps him answering questions.

One Sunday she returned from church deeply musing on the sermon, in which the preacher had declared that animals, lacking souls, could not go to heaven. As the result of her meditation, she presented a problem to the family at the dinner table, when she asked earnestly:

"If cats don't go to heaven, where do the angels get strings for their harps?"

* * *

R. S. (Tommy) Thompson of the Mt. Vernon Furnace Company was at home enjoying his cigar and paper recently when a hobo knocked at his front door and asked him if he would be willing to pay 50 cents to improve the looks of the front yard and when Tommy said yes, he said he would move on down to the next block for half a dollar.

* * *

"Sedentary work," said the lecturer, "tends to lessen the endurance."

"In other words," butted in Mike Reif, "the more one sits the less one can stand."

"Exactly," retorted the lecturer, "and if one lies a great deal, one's standing is lost completely."

* * *

"What was the name of the hotel you stopped at in Denver?" asked Louis Luckhardt of W. F. Angermeyer.

"Oh, I can't remember the name. Just a second and I'll look through my towels," replied Mr. Angermeyer.

* * *

G. E. Robinson, of the A. H. Robinson Company, Cleveland, Ohio, called me on the telephone on Thursday of this week. Mr. Robinson was passing through Chicago, accompanied by his wife and daughter, on his way to California. The Robinson family will visit Los Angeles, San Francisco, Seattle, Washington; Portland, Oregon, and other Western cities before returning to their home in Cleveland. I certainly hope they have a most enjoyable trip through the West.

* * *

Not Going That Way

A good many years ago a steamer was sailing down a certain river with a shrewd old Yankee captain in command. Suddenly the engines stopped, and the steamer remained motionless for several minutes. The passengers began to talk among themselves, and one of them, a portly, pompous person, advanced to the captain.

"What seems to be the trouble, Captain?" he asked. "Why have we stopped?"

"Too much fog," answered the captain curtly.

"But I can see the stars overhead quite plainly," argued the persistent individual.

"Mebbe you can," admitted the captain grimly. "But unless the b'ilers bu'st, we ain't going that way."

* * *

My friend, George W. McCabe, President of the Michigan Retail Hardware Association, gave his friends a great surprise at the convention this week by making the trip a honeymoon one. He arrived in Grand Rapids last Sunday, but had been married the day before.

The Editor's Page

Benefit from Reading Before You Sign

THE National Better Business Bureau is putting on a campaign of education whose ultimate goal is to make better business men of the men now engaged in productive industry. We heartily endorse this movement, as we fully realize the pressing need for just such education.

The men in the warm air heating and sheet metal contracting business are for the most part men who have graduated from the bench and have gone into business on their own. Most assuredly this is not to their discredit, but in a great many instances these men have been the victims of sharpers who prey upon the unsuspecting business man.

The customary practice of the sharper is to rush his victims into signing agreements before the latter have had time to study and digest thoroughly the contents of the agreements. In this way the party of the second part is induced to agree to do or pay for some particular thing without receiving an equivalent in service or commodities from the party of first part.

The burden of the second of the series of "Read Before You Sign" messages, which has only recently been released by the National Better Business Bureau, is that, "written contracts create mutual obligations." Interpreted this means that, in a contract between two people, what one agrees to deliver must equally balance what the other promises to pay and vice versa.

The written contract is the best form of agreement to use, always. It removes the possibility of misunderstanding. It puts down in black and white for the world to read what one man agreed to deliver and what the other man agreed to pay for such delivery. It signifies a meeting of the minds.

The big question is, was there actually a meeting of the minds of the two parties to the contract? Did the party of the second part read and thoroughly understand the terms of the contract before he affixed his signature. The courts assume that he did. It therefore behooves the parties to a contract to read thoroughly every word to that contract and be sure that they understand each phrase of it before finally signing it. If every business man entering into contracts would make sure that he thoroughly understands the terms of the contracts he signs, many thousands of dollars annually would be saved to business that now go toward law suits and the righting of misunderstandings between parties to contracts.

If you are interested in the "Read Before You Sign" campaign of the Better Business Bureau, you can have the series of bulletins on that subject mailed to you without cost by writing the National Better Business Bureau, Inc., 383 Madison Avenue, New York City.

Why Attend Your State Sheet Metal Convention?

THE 1927 convention of the Master Sheet Metal Contractors' Association of Wisconsin, with its accomplishments—and these were many—is now history. I have heard it said by sheet metal contractors that conventions are all right if you just want to take a little vacation of a few days. They give you an opportunity to get out with the other boys where the restrictions of the home town are thrown off for a brief spell of a few days.

I doubt very much that any of the men who attended the Wisconsin convention left it with the feeling that the sessions were not worth the carfare to bring them to Milwaukee and to transport them to their homes after it was over. These men had been told by the convention committee that they would receive a definite benefit from their attendance at the convention, and they did receive such definite benefit. In the first place, they received in one of their sessions a practical demonstration of the "United we stand, divided we fall" principle.

A menace to the industry sighted in the offing, and presumably preparing to rock it to the very foundations, brought these men into that session. They felt the need for banding themselves together into a more closely knit unit to ward off the impending catastrophe they saw, just as the men responsible for the founding of our country banded themselves together for the common defense. These sheet metal men came together to see what could be done about it. And they took measures to have something done about it. They gave their board of directors the power to act.

If their association means only an opportunity of getting out for a little fun once a year, then why did not these Wisconsin men go about preparing themselves individually to ward off the danger which they thought they saw in the offing? Why was the problem brought up at all at the meetings?

The problem was brought before the general assembly because the fact was recognized that more pressure could be brought to bear by an organized body than by a lone individual.

There are other states whose conventions have not yet been held. In these states there are men, no doubt, who are skeptical about the benefits received by them from attendance at their state conventions. Let these men read the report of the accomplishments of the Wisconsin state convention in the February 5 issue of *AMERICAN ARTISAN*. Then, if they are fair minded at all, they will waste no further time in wiring for reservations for attendance at their own state convention. The benefits they will receive will far outweigh the cost to them in actual time and money spent.

Dust—the Last Objection to Warm Air Furnace—Now Removed

New Air Filter Makes Warm Air Plant Ideal Heating System

IT IS a well-known fact that dust is potentially a carrier of disease germs. It stands to reason, therefore that any means for the elimination of dust in the home will be more than welcome.

After three years of research and tests, such a device has just been completed and placed on the market by the Reed Air Filter Company of Louisville, Kentucky. It is known

tion. Until the advent of the Reed furnace filter, however, no feasible plan had been devised to overcome the seemingly unsurmountable obstacle of dust and dirt coming up through the registers. The Reed filter now makes it possible not only to protect the health of the family but, in addition, to safeguard fine interiors and furnishings and remove the consequent drudgery and

hour. Each filter unit is therefore required to handle 7,500 cubic feet of air every twenty minutes or 375

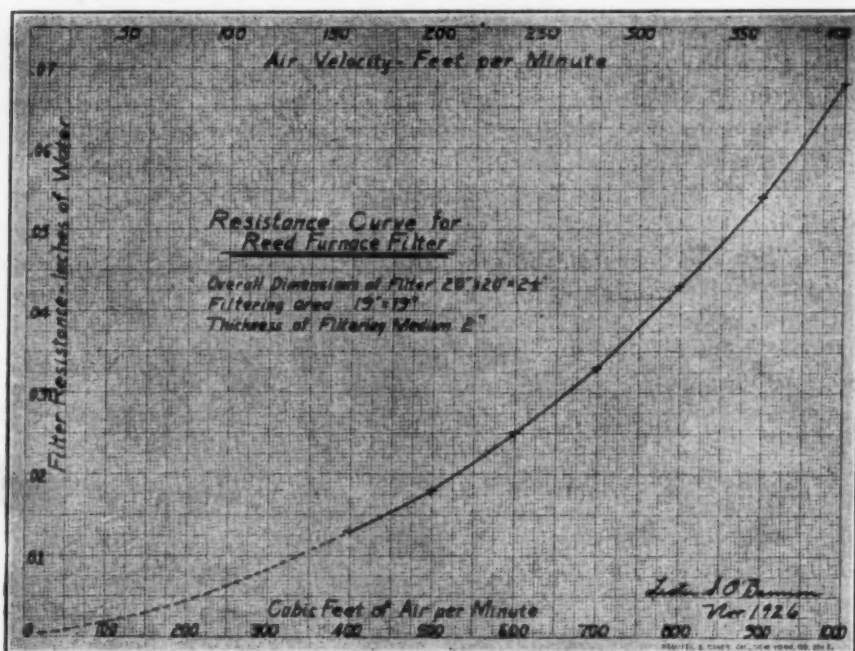


Figure 1—Air-Resistance Chart Prepared by Professor L. S. O'Bannon of the University of Kentucky

as the Reed furnace filter and is built on exactly the same principle as the Reed Air Filter Unit. This adaptation of the Reed system of air filtration to domestic use now offers the housekeeper a practical and inexpensive means of removing dust, dirt, soot and bacteria from the heating air in the home—the one and only objection to the warm-air system.

The warm air furnace has always had an advantage over steam and hot water systems, because of its constant circulation of air and the consequent prevention of stagna-

expense due to unnecessary dust and soot.

The filter can be used on all warm-air furnaces, whether gravity or "forced air" circulation. Where gravity circulation only is employed, the manufacturers of the Reed furnace filter recommend the use of one filter unit for each 7,500 cubic feet contents of the house. According to data compiled by Professor A. C. Willard at the Research Residence at Urbana, Illinois, the rate of gravity circulation, with an outside temperature of zero, is approximately three changes per

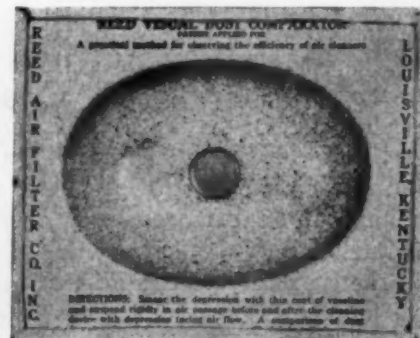


Figure 2—A Reed Dust Comparator After Exposure in Front of a Reed Furnace Filter. Note Quantities of Dust and Dirt.

cubic feet per minute. At this rate, its resistance to air flow is only .012 or less than 1/64 inch water gauge—little more than the resistance caused by a right-angle bend in the cold-air return.

The chart shown in Figure 1, prepared by Professor L. S. O'Bannon, of the University of Kentucky, shows the resistance of the Reed furnace filter at various air velocities.

The cleaning efficiency of this furnace filter is graphically illustrated by the two dust comparators shown in Figures 2 and 3. These two comparators were uniformly



Figure 3—A Similar Comparator After Exposure Behind a Reed Furnace Filter. Obviously Over Eighty-Five Per Cent of All Impurities Have Been Removed.

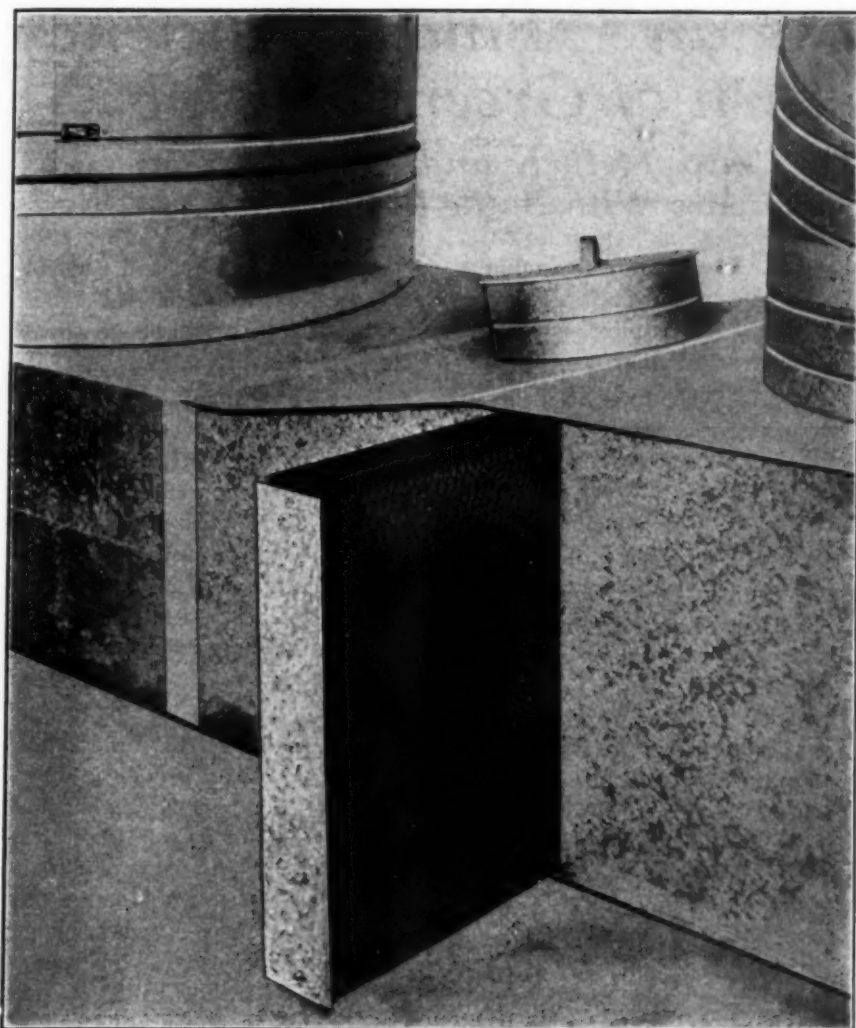


Figure 4—A Reed Furnace Filter Partly Withdrawn from Its Place in the Cold Air Return. Note Dust, Dirt and Soot That Have Been Prevented from Entering the Rooms of the Dwelling

coated with vaseline, one being suspended in the unfiltered air directly in front of the filter and the other, directly back of it, in the zone of filtered air. The manufacturers guarantee a removal of at least 85 per cent of all dust, dirt, soot and bacteria by the Reed filter.

The advantages of Reed Furnace Filters in connection with furnaces using the "forced-air" system of ventilation are so obvious that their use seems practically imperative. For in forced ventilation the movement of dust-laden air is decidedly increased and the need for dust removal correspondingly greater. The Reed Filter now makes it possible for the most critical architect or home-builder to install warm-air furnaces in homes and other buildings—large or small—with the unqualified assurance of clean, whole-

some heat and permanently satisfied users. In short, this new device has permanently removed the only disadvantage of warm-air heating and

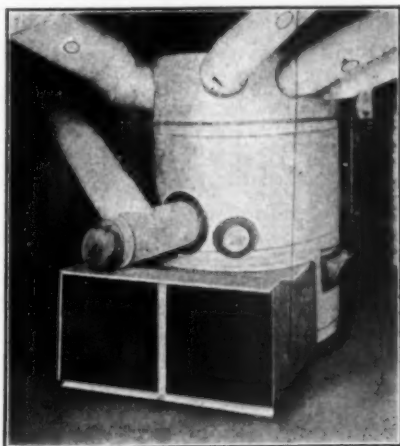


Figure 5—The Furnace Filter Taking Basement Air. The Filter Is Desirable Here Because It Eliminates the Heavy Dust Caused by Firing, Removal of Ashes, etc.

gives to the warm-air furnace a combination of advantages not obtainable in any other method: (1) Low initial cost, (2) lowest cost of fuel, (3) quick heating, (4) consistent degree of humidity, (5) uniform temperature in every room, (6) proper air movement for perfect ventilation and (7) clean, wholesome air.

The Reed Furnace Filter thus opens up an entirely new and profitable sales appeal for warm-air furnaces and is being accepted by architects, engineers, furnace manufacturers and owners as the fulfillment of their proverbial "long-felt want."

American Foundry & Furnace to Hold Dealers' Convention February 14 to 16

On February 14th, 15th and 16th The American Foundry & Furnace Company, Bloomington, Illinois, has arranged to have a combined dealers' convention and school at the factory. Some new and interesting devices in warm air heating will be shown and explained at this school.

In addition, Mr. Chester J. Scanlan, former chief engineer of the Williams Oil-O-Matic Heating Company, will give a series of lectures on various warm air furnaces and will conduct a school for dealers.

On Tuesday evening at seven o'clock at the factory, Professor A. P. Kratz, who is the Research Professor at the University of Illinois, will give an illustrated lecture on the research work at the university, and how it can be applied advantageously by a warm air furnace dealer.

The meeting will close with a banquet at the Hotel Rogers on Wednesday evening, February 16th. Richard Bradley will be speaker.

It will be instructive, entertaining and pleasant.

You are cordially invited to come.

Those men who have already heard Professor A. P. Kratz know that he will give them much food for thought in his talk at this meeting.

“Furnace Salesman” Finds Deficiency Cold Air Return of Green Bay Job

**Would Use Two 14-Inch and One
16-Inch Cold Airs With Baffle Plates**

WITH reference to the article appearing in the January 15th issue of AMERICAN ARTISAN, I hesitate to write or attempt to offer solutions or suggestions in connection with difficult heating problems, due to the fact that I am not an authority on the subject, and again to the fact that I am still learning.

But, as I have been receiving considerable help from articles appearing in the AMERICAN ARTISAN, I think that in an exchange of ideas now and then there can be no harm.

The installation sketch shows a 20-inch furnace with five warm air pipes and three separate cold air ducts.

The pipes taken off the furnace are three 12-inch and two 9-inch. Two of these pipes are “double-headers,” the sitting-room and bedroom heated with one 12-inch and the dining room and one bedroom heated with one 12-inch, and it would appear that the other 12-inch is used to convey heat to the upstairs.

The remarks which follow deal only with the installation as it now stands.

You state that “the lower casing heats up” and the cold air returns reverse, which indicates that the furnace is producing, but the heat is not being properly carried off. This is caused by a lack of proper circulation, as in using a 20-inch furnace we would find that it is not greatly oversized.

In taking the pipes off the furnace casing, in order to get all the help we can to correct the present trouble, I should try to arrange them so that they are properly distributed around the casing, which might mean a change of location on the casing in the case of the 12-inch pipe which leads to the sitting room and bedroom, the warm air pipes installed with a proper pitch to aid

the flow of warm air through the pipes to their full capacity, avoiding short angles in the pipe bends so as not to slow up the air travel.

The area of the three 12-inch and two 9-inch pipes is 465 square inches. According to the code, the minimum supply of cold air to the furnace must be equal to the pipes taken off the furnace.

“Furnace Salesman” has made a very thorough analysis of the Green Bay Hardware reversing cold air problem, as shown in our January 15 issue, and finds a discrepancy in the rectangular cold air returns. He recommends that the cold air pipes be arranged equi-distant around the casing. The boots must not be placed too high on the casing, and baffle plates should be inserted between the cold airs on the inside of the casing. He also recommends putting a warm air register in the living room or north bedroom.

The 12-inch cold air return recently installed at the foot of the stairway looks as though it could be counted on to give full capacity, and so we will deduct 113 square inches, leaving a supply of 352 square inches yet to be secured for the balance of the job.

It is recommended that the cold air faces be 10 per cent in excess of the free area of the duct required. So the cold air faces on the two remaining ducts would be required to have a free area of 387 square inches. You are using two 14x30 wood faces, each rated at 235 square inches, or 470 square inches, which would be considered plenty large enough.

You are using two 16-inch round

connections from the pan and box, the area of which is 402 square inches. These would be considered large enough for the job.

Next we turn our attention to the duct used to convey the heat from the cold air face in the sitting room to the 16-inch connection. The duct must be equal in size to a 16-inch round pipe to complete the installation. The one used is 8x28 inches, 224 square inches, and the 16-inch pipe is 201 square inches, so at first glance one would say that there could be no trouble here as to size.

But, we are told that for a simple method we can consider the effective area of a rectangular duct as 78½ per cent of its total cross sectional area. In the use of a duct 28 inches wide we would figure this to be 22 inches by 8 inches, giving us an effective area of 176 square inches, compared with a 16-inch round pipe area of 201 square inches. This would indicate that better results would have been obtained by the use of a duct 10x28 inches, giving us a greater effective area.

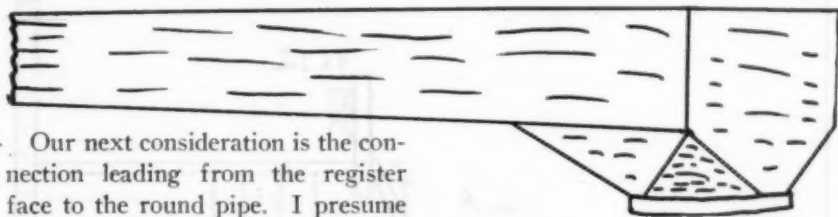
(Some furnace men, in figuring the size of rectangular duct connection to the round connection, use the following method: First, they note the area of the round connection, when using a 16-inch pipe this is 201 square inches; next they add 25 per cent, this would total 251 square inches; then they select a duct of convenient depth, say 8 inches, and a width which when multiplied by the depth would give 250 square inches, say 32 inches wide, or, if conditions necessitated the use of a duct 28 inches wide, they would have made the duct 9 or 10 inches deep.)

If it is at all possible I believe that we should try to do away with all unnecessary angles in the cold air construction, although I have

seen jobs with much worse angles than that which appears in your sketch of the sitting room duct, using a more graceful turn in the rectangular duct and giving some pitch, say 4 inches, on account of the length, to help insure full capacity.

Having done this, if we used the present duct, we could consider that of the 465 square inches required, we have secured 113 square inches from the hall cold air, 176 square inches from the living room cold air, a total of 289 square inches, leaving 176 square inches yet to be secured.

In connection with the cold air leading from the dining room we find the present register face plenty large enough, also the 16-inch round connection.



Our next consideration is the connection leading from the register face to the round pipe. I presume that the cellar joists are 2x8, 16-inch centers, and two of the spaces used for the cold air, the capacity of which, if 14 inches in the clear, would be 176 square inches. So, providing the width is 14 inches in the clear, if we line the joists, as shown on the sketch, so far as area is concerned we have sufficient.

Although I believe it would improve the installation if we used a pan and dropped down below the joists 4 or even 6 inches, as is recommended in the code.

We would then turn our attention to an examination of the connection from the rectangular ducts to the round ducts to see that they give full capacity. On sketch herewith note the fitting used where the round pipe joins the horizontal rectangular duct, also pitch in the rectangular duct.

The next step would be to see that the boots have been properly placed around the casing for proper distribution. Then our attention would be directed to their size.

We are using two 16-inch cold air connections and one 12-inch, the

latter would probably be connected to the furnace with an elbow and does not concern us, except as to location, as great as the two 16-inch boots. I believe a boot 12 inches high and 22 inches wide would serve the purpose and give us sufficient capacity. This size is merely mentioned to make a comparison with what you are using.

It is very important that you make sure that they have not been placed too high on the casing to insure proper results. •

Your next step would be to install inside the casing a "baffle" between the cold air openings, so as to divide and keep the one from interfering with the other.

I believe, too, that the installation might be improved by placing another warm air register either in the

living room or north bedroom if it is possible or convenient to do so.

If our figures are correct, that is with the cold air from the sitting room installed as shown, the effective area was no greater than 176 square inches and the one from the dining room another 176 square inches, or a total of 352 square inches, we can now see why it was necessary for you to add the 12-inch cold air from the foot of the stairway, there being 465 square inches required.

I believe that if this correction had been made with a 14-inch cold air, the connection at the bottom of the furnace casing being made as far towards the front of the furnace as possible, "baffles" placed so as to keep one cold air from interfering with the other, you would have noticed even a greater improvement, as the length of the present sitting room cold air and the angle probably cuts down the effective area to less than 176 square inches as figured.

In planning new installations with regard to the cold air ducts, I be-

lieve that it would make a better job if it were possible to use a 14-inch duct for the bottom of the stairway, a 14-inch duct for the dining room and a 16-inch duct for the sitting room.

Also, if it is possible on new installations, it might be a good idea to place the cold air face in the sitting room in a different location, so as to shorten the length of the connecting ducts. Any advantage secured by locating the face as at present would probably be more than offset by the advantage of a shorter run to the furnace.

When you have overcome the trouble on this job, I hope you will tell us through AMERICAN ARTISAN how it was accomplished, as there are many other installers who have experienced this same trouble.

Public Interest Demands Revision of Postal Rates

A demand for the revision of existing postal rates was filed December 9 with the Congressional Joint Subcommittee on Postal Rates, the Postmaster General and the Director of the Budget, by John W. O'Leary, president of the Chamber of Commerce of the United States.

"The Chamber of Commerce of the United States," says Mr. O'Leary, "believes that definite action should be taken on postal rates in the present session of Congress. Experience has proved the present rates in many respects to be uneconomic and unsatisfactory. The National Chamber has already pointed out that the increased rates are generally too high and that their correction is urgently needed in the public interest.

"Definite confirmation of these conclusions and additional facts as to the effects of existing rates are set forth in the report of the Postal Service Committee of the National Chamber. The far reaching character of the present rates, their unfairness to many branches of business and the resulting harm to the general public welfare are clearly shown."

E. F. Snider Thinks Furnace Too Small in Green Bay Job

Thinks Furnace Manufacturers Should Insist Upon Code Installations

THE furnace in the Green Bay Hardware reversing cold air installation, which appeared in AMERICAN ARTISAN under date of January 15, is too small, in the opinion of E. F. Snider, proprietor of the Ideal Sheet Metal Works, 204 Cedar Street, Muscatine, Iowa.

Mr. Snider thinks that the 12-inch pipe running to the bedroom and sitting room on a double head is not large enough, as there is but a 7 by 12-inch register box which will carry only 84 inches of air. Then, too, the double head at the bedroom and dining room blocking your warm air in these two 12-inch pipes will stop your circulation, causing the cold air to return to the furnace through the warm air pipes.

I have found that the double register is not the best thing, except in very small rooms.

I should run a cold air duct or box to the kitchen and bathroom, dropping both of these into a box made 8 by 32 at the register and 10 by 32 at the furnace. I should also line the dining room joist to the same box, connecting the two at a point directly over the 18-inch collar and connecting the furnace with the boot.

This arrangement will provide an avenue of escape for the cold air in these rooms. As it is now, the air must travel over the floor of the dining room to the cold air register, which, in my sad experience, is a bad thing to do.

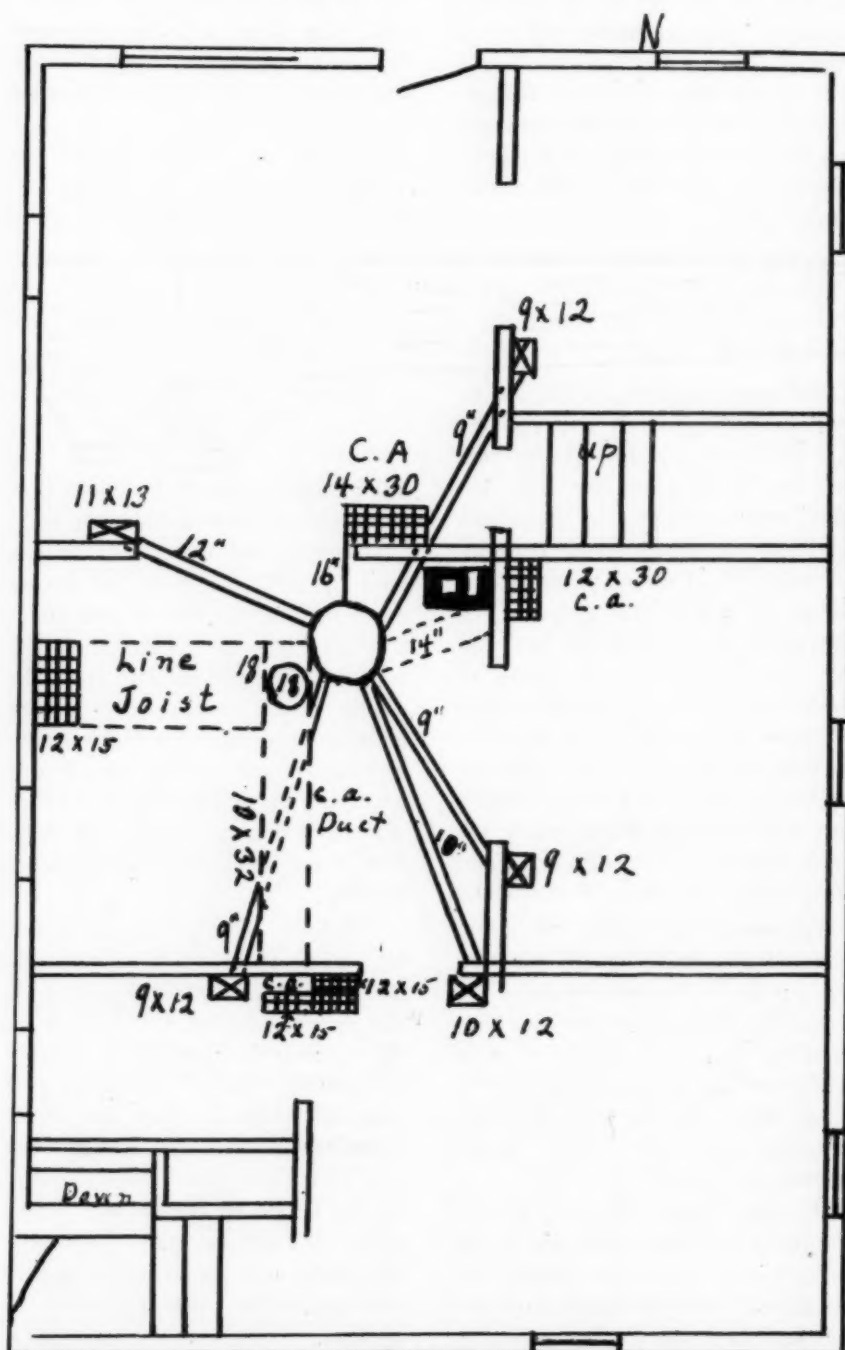
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"It is my experience that anyone can put a furnace in the basement, cut a few holes in the floor and walls, run pipes to them from the furnace. But my definition of a real warm air furnace installer is a man who can go into any school, church, office building, garage or dwelling house, figure the requirements of the job scientifically and

put in a heating plant that will do the work required of it.

"I have read in AMERICAN ARTISAN of warm air furnace installers who say that warm air furnace manufacturers do not co-oper-

ate with their installers in their work. This is true to a certain extent, but the installers are not entirely to blame in every case of this kind, because some of the manufacturers make a practice of sending



How E. F. Snider Would Arrange the Job

out men on the road as salesmen who are nothing more than order takers. These men tell their prospective dealers all kinds of humorous jokes about a warm air furnace instead of spending the time in ways that would profit the installer and the salesman.

"The warm air heating of large buildings is still young, but these buildings can be heated with proper

Mr. R. Thiessen, of the Green Bay Hardware Company, advises us that there was an error made in the original drawing, which appeared in the January 15th issue. He says baffle plates 12 inches high were used on the job.

He says there is no warm air located at the foot of the stairway, as shown in the sketch, but there is a 12-inch cold air here. There is a 9-inch warm air leading to a room upstairs, instead of a 12-inch as is shown on the sketch.—

The Editor.

co-operation between the manufacturer and installer. There are, of course, poor dealers, just as there are poor salesmen in the warm air heating industry. But I believe for the most part that the National Warm Air Heating and Ventilating Association is going to put warm air heating on a high plane where it justly belongs.

"It is my opinion that the sooner warm air furnace manufacturers demand that their furnaces be installed according to the Standard Furnace Code, the sooner the industry will pull itself out of the rut. Each Code job will sell another.

"Furnace dealers cannot belong to the National Warm Air Heating and Ventilating Association (how about the associate membership, Mr. Snider?), but they are reaping the benefits of the research work that is being done, so let us help the good work along. I also want to express my appreciation to AMERICAN ARTISAN for the good which I have derived from my subscription to it."

Sheet Metal and Warm Air Heating Industries at Michigan Show

Exhibits Show All New Developments in Those Industries

THE following companies exhibited at Grand Rapids:

American Furnace and Foundry Company, Milan, Michigan, furnaces.

American Steel & Wire Company, steel fences, posts and gates. Representatives present were W. H. Parker, Henry Squibbs, L. N. Silverman, J. W. Martin and K. Martin.

The Beckwith Company, Dowagiac, Michigan, furnaces. Representatives present were David Hughes, H. Spaulding, H. H. Thick, F. Richard, E. G. Wier and J. A. Howard.

The Bell Furnace and Manufacturing Company, Northville, Michigan, warm air furnaces. Representatives present were S. W. Ambler, Pres. F. L. Darlington and H. E. Hall.

Excelsior Steel Furnace Company, Chicago, furnaces. Representatives present were R. H. Bristol, C. E. Glessner.

Floral City Heater Company, Monroe, Michigan, furnaces. Representative present was James A. Eisenman.

The Fox Furnace Company, Elyria, Ohio, cabinet heaters and furnaces. Representatives present were J. A. Ruetty and M. W. Piggett.

The Globe Stove & Range Company, Kokomo, Indiana, furnaces and ranges. Representatives present were W. H. Carpenter, Charles R. Curlee and George Barber.

Homer Furnace Company, Coldwater, Michigan, furnaces. Representatives present were Ros Strong, M. L. Evans, B. T. Jeffery and Dewey I. Doyle.

W. C. Hopson Company, sheet metal and furnace supplies. Representatives present were S. Hazenberg, C. M. Wessell and D. Witmer.

Lennox Furnace Company, Marshalltown, Iowa, furnaces. Representatives present were H. O. McElwain and F. S. Hynds, secretary-treasurer.

Milwaukee Corrugating Company, Milwaukee, Wisconsin, furnaces, fittings, metal ceilings, Spanish metal tile. Representative present was Chas. F. Nason.

Mt. Vernon Furnace and Manufacturing Company, Mt. Vernon, Illinois, furnaces and stoves. Representatives present were R. S. Thompson and C. T. Mullen.

L. J. Mueller Furnace Company, Milwaukee, Wisconsin, furnaces. Representatives present were E. G. Miller and G. W. Johanson.

Peninsular Stove Company, 1417 Fort Street, West, Detroit, Michigan, circulators and gasoline stoves. Representatives present were V. W. Wilkerson, L. J. Baltzek.

National Carbon Company, Chicago, Illinois, flashlights and batteries. Representatives present were A. D. Moss, E. A. Lanterman, E. O. Lundgren and J. K. Marten.

Premier Warm Air Heater Company, heaters. Representatives present were Glenn Burgess and Richard M. Judd.

R. J. Schwab & Sons Company, Milwaukee, Wisconsin, furnaces. Representatives present were Travers Daniel, Jr., A. G. Pomrening, C. J. Heyboer, a Grand Rapids, Michigan, dealer.

Tuttle & Bailey Manufacturing Company, registers. Representatives present were Bill Laffin, E. W. Dougherty and L. E. Sampson.

Utica Heater Company, New York and Chicago, furnaces. Representatives present were Henry T. Koessel and Albert F. Hem.

Vaughan & Bushnell Manufacturing Company, Chicago, tools. Representatives present were Gus Ruhling and Fred Russell.

Michigan Retail Hardware Men Meet at Grand Rapids

Coöperative Advertising One Method With Which to Combat Mail Order Competition

CO-OPERATIVE newspaper advertising by hardware stores is a means of combatting the inroads of mail order competition was the opinion of Dean Charles M. Thompson of the school of commerce and business administration of the University of Illinois in an address at the opening session of the Michigan Retail Hardware Association in the Hotel Pantlind, Grand Rapids, Michigan, February 8, 9, 10, 1927.

"No matter how you regard your competitor across the street, you will find that you have plenty of problems in common," said Dean Thompson.

"Get together and work out a campaign. There are few fields where you can obtain expert aid at so reasonable an outlay. Few realize the business, poor, unscholarly advertising has lost.

Describes Home Owners' Need

"Get the young people into your store by some means. They are familiar with the corner drug store and soda fountain, the big stores and probably the grocery store, but thousands of them know nothing about the hardware store.

"I took my son, a first year high school boy, to a hardware store a short time ago. He was fascinated by the tools, the sporting goods, the various mechanical devices. Getting the attention of the young people means much to your business."

Dean Thompson advised hardware dealers to handle, in addition to their high class lines, cheap lines of tools which the householder needs frequently. The average man doesn't feel like buying, or know how to use, the high class tools of skilled workers, yet there is a big field for a certain class of tools which every household needs.

Better credit methods, the or-

ganization of credit bureaus where none exists, and constant watchfulness of changing conditions and needs were emphasized as requisites of every retailer.

Contrasts Methods

Contrasts between old and new methods and means of meeting present day trade requirements were outlined by Herbert P. Sheets, of Indianapolis, secretary of the National Retail Hardware Association, one of the afternoon speakers.

"The tendency of some jobbers to sell direct to the trade has reached a point to cause alarm," said President George W. McCabe, of Petoskey, in his annual address.

"Two years ago the association asked the jobbers to refrain from selling to the general public, but everywhere we find jobber competition, although some are playing square."

He suggested that the association request conference with jobbers to effect an agreement on the matter, but if unsuccessful that the organization investigate co-operative or association buying. The tendency is toward orderly, well lighted stores and scores of members are on a budget system, the president said.

State Association Largest

Secretary A. J. Scott spoke of many new forms of competition and said many dealers are changing forms of merchandising. The field secretary, who once found no particular welcome as he called on retailers, now is kept so busy that he is pressed for time. The membership on January 1, 1927, was 1,731, as compared with 1,729 on January 1, 1926. The organization is the largest single state hardware association in the United States.

Secretary Scott read his annual report, as follows:

This has been an unusual year for most of us and the new conditions which we have been called upon to meet have required our best thought and effort in order to maintain our economic position and entrench the business in which we are engaged, against the many new forms of competition.

From my observation, many dealers are changing their methods of merchandising. They are adopting new and up-to-date policies and methods, in selling and display, and are holding their trade and making progress.

The Congress of the National Retail Hardware Association, which was held in Indianapolis last June, was a most remarkable gathering of hardware men. The theme of the Congress was: "The Future of Retailing." This subject was discussed from all angles by practical hardware men and others who had made a study of some particular phase in the system of retailing.

A very complete report of the proceedings of this Congress was published in our official publication, *Hardware Retailer*, which I presume you all read.

The questions prepared by the Question Box Committee to be discussed at this convention all have a bearing on "The Future of Hardware Retailing" and it is hoped that members will enter very freely in all the discussions, so that sound conclusions may be reached, which will be of benefit and reflect into better business for the individual hardware retailer for the year 1927.

The record of our Association since our last convention shows very gratifying progress in all departments. We have achieved a number of important accomplishments in the interest of the hardware trade, and the membership as a whole, has displayed a greater

degree of active interest than ever before.

We can still boast of the largest single state hardware association in the United States, having the lead by a good margin.

There were, as usual, many business changes during the year, which naturally makes quite a change in the personnel of our membership and makes it necessary that we keep adding new members to take the place of those going out of business.

Our Association can not grow much larger, for the reason that we have about reached our limit, as most of the hardware dealers of the State are now members.

Our membership on January 1, 1926, was 1729. This year on January 1 our records showed 1731, which is an increase of two mem-

bers for the year, which should be considered very good under the circumstances.

Field Secretary C. F. Nelson is doing a splendid work and I know his services are appreciated by the major portion of our membership.

When he first started this work of making personal calls upon members, which was nearly five years ago, it was a matter of going from store to store offering his services, which were very seldom accepted.

The hardware show which fills practically the entire ground floor of the Waters-Klingman Building is the largest ever held by the association. Outdoor and recreational lines such as outboard motors, as well as furnaces and stoves, particularly oil ranges and other types for farm use, are shown in large numbers.

Warm Air Furnace and Sheet Metal Men Exhibit at Iowa Hardware Show

Booths Attractively Decorated—Salesmen Report Unusual Sales Activity

MANUFACTURERS having exhibits at the Iowa hardware show, being held in conjunction with the Iowa Retail Hardware Association convention this week at Des Moines, are the following:

American Steel & Wire Company, Chicago, showing wire fencing and Ideal "U" steel posts. In charge of the exhibit was A. L. Hinrichsen. Other representatives present were C. L. Tite and Lee Ingalls.

The Beckwith Company, Dowagiac, Michigan, showing stoves and ranges. Representatives of the company present were H. P. Knowlton, J. H. Vandenberg and J. L. Parker.

The Des Moines Stove Repair Company, Des Moines, Iowa, showing furnace fire pots, furnace grates and boiler grate bars. J. B. Green was in charge of the exhibit. Other representatives present were S. C. Green, H. B. Weaver, A. H. Erickson.

The Fox Furnace Company,

Elyria, Ohio, exhibiting cabinet heaters. E. H. Skinner of the Luthe Hardware Company, Des Moines, was in charge of the exhibit.

The Howard Stove & Range Company, Ralston, Nebraska, showing the overdraft circulator, the Beauty steel range and the Elite cast range. E. L. Bookout, Iowa representative, was in charge of the display. W. R. Cameron, sales manager, was also present. The visitors to the booth were given very useful little bill hooks.

Keith Furnace Company, Des Moines, Iowa, furnaces. Representatives present were B. R. Pranke, Geo. E. Roberts.

The Lennox Furnace Company, Marshalltown, Iowa, and Syracuse, New York, were present with the Torrid Zone furnace. Roy T. Wasson, sales manager, was in charge of the exhibit. Salesmen present were Guy Morris, Charles N. Fulk, F. J. Kusel, Harry Spohr and Edgar A. Hunter.

The Milwaukee Corrugating Company, Milwaukee, Wisconsin, showed furnace fittings and sheet metal products. In charge of the exhibit were P. E. Sauerwein, Keokuk, Iowa; J. R. Morgensen, Sioux City, Iowa, and J. L. Baur, Waterloo, Iowa. Cigars were given the visitors.

The L. J. Mueller Furnace Company, Milwaukee, Wisconsin, displayed their new full front return flue furnace, double radiator furnace, furnacettes, Perfection air moisteners, registers, Snaplock fittings and the Miles furnace fan. In charge of the exhibit was Norris M. Blanchard. Salesmen present were F. E. Hoyt, Cedar Rapids; George Angus, Ottumwa.

Peninsular Stove Company, Detroit, Michigan, showed ranges, the Duo circulator and gasoline stoves. In charge of the exhibit was R. L. Strunk.

The Quick Meal Stove Company, St. Louis, Missouri, exhibiting coal ranges, gasoline pressure stoves, gas stoves and oil stoves. In charge of the exhibit were A. L. Grossman and J. J. Troxell.

A. H. Robinson Company, Cleveland, Buys Factory Building at Massillon, Ohio, to Increase Facilities

The A. H. Robinson Company, Cleveland, Ohio, have purchased a factory building at Massillon, Ohio, in order to take care of their increasing business and also in order to be nearer the plant of the Central Steel Company, whose Toncan metal the A. H. Robinson Company, uses according to G. E. Robinson.

The A. H. Robinson Company has outgrown their present quarters and have felt the need for larger quarters for some little time. The new factory at Massillon will give them the added space required and will also facilitate their work because they will be nearer their source of supply. C. W. Griffith and B. F. Fairless of the Central Alloy Steel Company are members of the Board of Directors of the A. H. Robinson Company.

Iowa Retail Hardware Men Hold "Peppy" Meeting

*Many Educational Talks Were Heard
and the Entertainment Was First Rate*

THE twenty-ninth annual convention of the Iowa Retail Hardware Association in the Venetian Room of the Hotel Savery, Des Moines, Iowa, February 8 to 10, 1927.

"A survey of the business situation as viewed from the standpoint of the average hardware retailer reveals a very complex situation," said President Mueller.

We seem to have been more or less suddenly overtaken by a series of complicated problems in the conduct of the once simple business of hardware merchandising. That brings to mind the celebrated question of a bemuddled congressman, who after listening to a series of motions, amendments, substitutes, points of order, questions of privilege and order of the day, finally rose to a question of privilege himself and demanded of the presiding officer "Mr. Speaker, where are we at?"

One of the main questions before this gathering is to ascertain just that fact. Where is the business of hardware retailing at? That it is a good business is demonstrated by the fact that so many different kinds of people want to get into it.

The department stores, the drug stores, the grocery stores, the specialty stores, the furniture stores, the big chain stores and the big book stores all cater to the hardware items that once were found nowhere else than at the old, reliable hardware store.

As you stroll down the Main street of the average Iowa town your efforts to find a hardware store may lead you into a drug store, a furniture store, a grocery store, or a specialty shop as their windows are trimmed like a hardware store.

"The principal topic to be discussed," said President Mueller, in

his annual message, "at our meetings, as well as all the other state meetings, is 'The Future of Hardware Retailing.' That this topic is of the utmost importance can well be granted, otherwise our National Board would not have chosen it for the study and deliberations at all the state conventions. It is, by far, too big a problem to analyze, completely, in a paper or even at a convention. But, Secretary Sale was very fortunate in inducing such men as our National President, Hobart R. Beatty, Mr. B. Christianson, the energetic Wisconsin Secretary; Mr. Frank Stockdale, Mr. Chas. H. Mackintosh and Mr. Fred W. Anderson to be with us in our deliberations. All except Mr. Anderson have been with us before, and we know that in their long experience they have gathered a vast fund of information which they are only too glad to impart to us. As regards Mr. Anderson—a man, who can do a \$300,000.00 business in a country town of thirteen hundred population, has something that is well worth listening to.

"I am afraid too many of us have been waiting for times to change. However, according to good authority, present conditions are with us to stay indefinitely.

"According to National statistics, for a number of years, business done by the Iowa hardware merchants has shown a decline in volume as compared to the previous year. In a good many instances the business showed an actual loss. At the same time, Woolworth's, Kresges' and other chain systems are installing new stores in these same communities and do business at a good profit. During these same years, the mail order houses have shown a continued increase in volume. What is the answer?

"First—We must buy our mer-

chandise at a price in order to be able to meet this competition which is with us to stay. This brings up the old questions of keeping cost books, knowing your prices, joint buying, etc. I am not going to take the time or weary you by going over these same old topics. We have all heard them before and should realize their importance. Nevertheless, I cannot help calling your attention to a circumstance showing the wide divergence of buying ability and price knowledge. For the benefit of the delegates to the National Congress held in Indianapolis last June, one of the National officers bought from different merchants in different towns duplications of probably fifty standard hardware items. These items ranged from screw drivers to steel goods and lawn mowers. The comparisons were almost unbelievable. The identical articles were ranged side by side with the costs, that the different merchants paid for them, attached. In some instances, the cost showed a difference of from twenty-five to thirty-five percent.

"The second phase of this question concerns the merchandising problem. I am afraid too many of us have been laying back on our oars waiting for times to change and business to pick up. This waiting game may be all right in some things but, when it comes to business, it will be a survival of the fittest. Possibly the dealer from the smaller town may think or say.

The remainder of President Mueller's address was equally instructive, but space does not permit its inclusion here.

The remainder of the program was carried out as scheduled, with a few minor changes.

Excerpts of the addresses that were made will appear in later issues of AMERICAN ARTISAN.

Place New Rust-Resisting Smoke Pipe Sheet on the Market

*Can Be Used for Oven Linings
and Gas Stove Bottoms*

A NEW rust-resisting smoke pipe sheet, known as Ascoloy, has been placed on the market by Joseph T. Ryerson & Son, Inc. Describing this new sheet the manufacturer says:

"The renewal of the smoke pipe between furnace and chimney is one of the annual troubles of the average householder. The scale in winter and rust and corrosion during the ideal summer months soon eat out ordinary piping.

"Nothing is more inconvenient than to have the furnace pipe give way during the winter when a good hot fire is burning, inasmuch as the time taken to repair the pipe is considerable, and in the meantime the house is filled with smoke and the fire goes out.

"No trouble will be experienced by the sheet metal men in working up this new metal, as any shop using ordinary galvanized sheets can handle Ascoloy with their standard equipment.

"Ascoloy is a chrome iron, and has the same general characteristics, so far as rust and corrosion resistance is concerned, as stainless steel. It also has the ability to withstand a temperature of about 1,500 degrees Fahrenheit without having any scale form on the surface.

"Ascoloy sheets are carried in 24-gauge, 24 inches wide and 120 inches long, with a white pickled finish, and can be readily formed into elbows, 45-degree bends, and straight lengths of pipe, inasmuch as the material is soft enough to be double seamed without difficulty.

"The average cost of this material is about three and one-half to four times that of galvanized sheets, but the long life which can be expected from it more than offsets this cost.

"In using an Ascoloy smoke pipe, it is not necessary to take it down in the summer, since soot and products of combustion which accumu-

late during the winter will not have any detrimental effect during the summer period of idleness.

"Being able to guarantee smoke pipes for ten years is a distinct advantage to any local sheet metal shop and they will be able to get proportionately more for them than the increased cost of the raw mate-



In Use

rial. Such a guarantee will be perfectly safe and will be backed up by Joseph T. Ryerson & Son, Inc.

"There are numerous other uses for this material such as oven linings and gas stove bottoms, where the ability of the metal to withstand continuous heat without forming scale is a great advantage."

Ed Behler and "Brigg" Young Enter Business at Grand Rapids

While in Grand Rapids this week, attending the Michigan Retail Hardware Convention, the writer made it a point to call on our good friends, W. H. Young and E. E. Behler, who the first of this year

started a jobbing house under the name of The Behler-Young Company, Bond Street at Trowbridge, Grand Rapids.

I was agreeably surprised to see what a fine establishment the boys have fixed up. They occupy a 2-story daylight warehouse with ten thousand feet of floor space located right on railroad siding so that goods can be both loaded and unloaded direct from cars on to their freight elevators, a great time and labor saver.

Both Ed Behler and "Brigg" Young are very well known to the Michigan boys, and judging from the way business is coming in, The Behler-Young Company will soon be numbered among the leading sheet metal and furnace supply jobbing houses in the State. They carry complete stocks of Michigan Standard, galvanized sheets, tin plate, eaves trough, sheet metal supplies, registers, furnace fittings, etc.

Evidently the boys believe in the National slogan, "Use Sheet Metal for Beauty and Permanence," as their office is a sheet metal office in every way—sheet steel ceilings, sidewalls, etc., being used.

Fred S. Doran to Manage Joseph T. Ryerson Cleveland Plant

Mr. Fred S. Doran has just been appointed manager of the Cleveland plant of Joseph T. Ryerson & Sons, Inc. This new warehouse plant of the Ryerson company was purchased from the Bourne-Fuller company of Cleveland on Jan. 3, 1927.

Mr. Doran has been associated with Joseph T. Ryerson & Son for 21 years. Beginning in the office, he traveled the Wisconsin territory for five years then covered the Chicago city territory for some time until he was made assistant to Mr. A. M. Mueller, general manager of sales.

He is one of the best posted and best liked men in the steel service business, and we are sure Cleveland will like him. Mr. Doran has keen ability as a manager and a friendly and sincere character that has

brought him many friends in every walk of life.

E. A. Schmidt, Wisconsin Rapids, Will Enter Sheet Metal and Furnace Business—Wants Catalogues

E. A. Schmidt, of Wisconsin Rapids, Wisconsin, is preparing to open a sheet metal contracting and warm air furnace installation business in Wisconsin Rapids, Wisconsin, and is desirous of obtaining catalogues and prices covering these lines.

Credit Men Recover \$600,000 and Jail 150 Crooks

It is estimated that more than \$600,000 has been recovered from fraudulent bankruptcies since June 1, 1925, by the nation-wide operations of the Credit Protective Department of the National Association of Credit Men, according to reports from committees made public today.

The reports show that about 150 bankruptcy crooks were jailed through the efforts of the association since it raised its million dollar fraud fund in June, 1925. These convictions were obtained in every industry of any importance and covered the country. In New York City alone there were about 60 convictions in this period.

At present there are more than 215 indictments pending that may not result in trials for about four months. The delay is often accounted for, the committees find, by the "stalling" tactics of dishonest bankrupts to wear down the patience of creditors. As the association's credit protection work is largely in the hands of paid executives, the factor of endurance no longer exists, the committees point out, and cite cases where the association has fought for a trial for more than two years.

"Our success in obtaining evidence has been so gratifying," J. H. Tregoe, executive manager of the association, said today, "that we are now raising an additional \$750,000 that will make it possible for

us to carry on for at least another three years. We have operatives in all important cities and are prepared to pick up cases anywhere in the country. United States attorneys are with us and the judges are realizing more and more the value of our work."



Connecticut Hardware Association Convention, New Haven, February, 1927. Henry S. Hitchcock, Secretary, Woodbury.

Minnesota Retail Hardware Association Convention and Exposition, St. Paul, February 15 to 18, 1927. Manager and Treasurer, Charles H. Casey, Nicollet at 24th Street, Minneapolis, Minnesota.

Pennsylvania and Atlantic Seaboard Hardware Association, Philadelphia Commercial Museum, February 15, 16, 17 and 18, 1927. Sharon E. Jones, Secretary-Treasurer, Wesley Building, Philadelphia, Pennsylvania.

Ohio Hardware Association Convention and Exhibition, Columbus, February 15, 16, 17, 18, 1927. James B. Carson, Secretary, 411 Mutual Home Bldg., Dayton.

Illinois Retail Hardware Association convention and exhibit, Hotel Sherman, Chicago, February 15, 16, 17, 1927. Leon D. Nish, 14 North Spring Street, Elgin, Illinois, Secretary.

California Retail Hardware and Implement Association Convention and Exhibition, Sacramento Memorial Auditorium, February 15, 16, 17, 18, 1927. Hotel headquarters, The Senator. Le Roy Smith, Secretary, 112 Market Street, San Francisco.

Carolinas-Virginia Association of Sheet Metal Contractors, Durham, North Carolina, February 22 and 23. Secretary, George I. Ray, Charlotte, North Carolina.

South Dakota Retail Hardware Association Convention, headquarters, Coliseum, Sioux Falls, February 22, 23, 24, 1927. Chas. H. Casey, Manager-Treasurer, Nicollet Avenue and 34th Street, Minneapolis.

New England Hardware Dealers' Convention and Exhibition, Mechanics' Building, Boston, Massachusetts, February 22, 23 and 24, 1927. George A. Fiel, Secretary, 80 Federal Street, Boston.

Ohio Sheet Metal Contractors' Convention, Columbus, Ohio, February 23, 24 and 25, 1927. W. C. Abbott, New Southern Hotel, Columbus, Ohio, Secretary.

Michigan Sheet Metal and Roofing Contractors' Association, Pantlind Hotel, Grand Rapids, March 1, 2 and 3, 1927. Frank E. Ederle, Secretary, 1121 Franklin street, S. E., Grand Rapids.

Indiana Sheet Metal Contractors' Convention, Hotel Severin, Indianapolis, March 8, 9 and 10, 1927. L. W. Beach, Richmond, Indiana, secretary.

Indiana Fur-mets annual convention, Hotel Severin, Indianapolis, March 8, 9 and 10. Harry R. Jones, 308 Kenmore road, Indianapolis, Secretary.

Indiana Heating and Ventilating Association Convention, Hotel Severin, In-

dianapolis, March 8, 9 and 10, 1927. Frank E. Anderson, Terre Haute, Indiana, Secretary.

Sheet Metal Contractors' Association of Pennsylvania and the Distributors' and Salesmen's Auxiliary of Pennsylvania, Hotel Bethlehem, Bethlehem, Pennsylvania, April 5, 6 and 7, 1927. W. F. Angermeyer, 7253 Frankstown Avenue, Pittsburgh, Secretary. George A. Hesky, 314 Packer Avenue, Bethlehem, Chairman Convention Committee.

Illinois Sheet Metal Contractors' Association, Ottawa, Illinois, April 6 and 7, 1927. Fred J. Graeff, Secretary, 222 East Washington Street, Springfield, Illinois.

National Warm Air Heating and Ventilating Association, Hotel Cleveland, Cleveland, Ohio, April 13 and 14, 1927. Allen W. Williams, 168 East Long Street, Columbus, Ohio, Secretary.

Southeastern Retail Hardware and Implement Association, composed of Alabama, Florida, Georgia and Tennessee, Convention and Exhibition, Jacksonville, April 19, 20, 21, 1927. Walter Harlan, Secretary, 701 Grand Theater Building, Atlanta, Georgia.

Texas Sheet Metal Contractors' Association, Hotel Adolphus, Dallas, Texas, April 24 and 25. Harry Stanyer, Secretary-Treasurer, 2422 Alamo Street, Dallas.

National Association of Sheet Metal Contractors, Adolphus Hotel, Dallas, Texas, April 26, 27, 28 and 29, 1927. W. C. Markle, Secretary, 850 West North Avenue, Pittsburgh, Pennsylvania.

Arkansas Retail Hardware Association Convention, Little Rock, May, 1927. L. P. Biggs, Secretary, Little Rock.

Southern Hardware Jobbers' Association, Peabody Hotel, Memphis, Tennessee, May 10 to 13, 1927. John Donnan, Secretary, Richmond Virginia.

Old Guard Southern Hardware Salesmen's Association, Peabody Hotel, Memphis, Tennessee, May 11, 1927. R. P. Boyd, Secretary, R. F. D. No. 4, Box 19, Knoxville, Tennessee.

Mississippi Retail Hardware and Implement Association Convention and Exhibition, headquarters, White House, Biloxi, June 13, 14, 15, 1927. Buy Nason, Secretary, Columbus.

National Retail Hardware Association Congress, Mackinac Island, Michigan, June, 1927. H. P. Sheets, Secretary-Treasurer, 130 East Washington Street, Indianapolis, Indiana.

Missouri Sheet Metal Contractors' Association at Sedalia, Missouri, July 12 and 13, 1927. Ben Kolbenschlager, 3618 North Grand Street, St. Louis, Secretary.

Retail Hardware Doings

Indiana

The Tumilty-Craig Hardware Company, Greensburgh, was incorporated with a capital stock of \$25,000.00.

Michigan

The Allace Brothers Hardware Store, Benton Harbor, has gone out of business.

The Capital Hardware Company, 10841 Mack Street, Detroit, opened for business.

William Spitzley of Portland has purchased the interest of his partner, Elmer Green, in the Portland Hardware Company.

THE SATURDAY EVENING POST

Now—a Rust-Resisting Time-Tested Iron Made Even Better

Provides greater resistance to rust and corrosion by the scientific addition of copper and mo-lyb-den-um

THE same metallurgists who gave the world mo-lyb-den-um steel have now developed Toncan Iron containing this super-alloy. Combined with copper in a pure iron base, mo-lyb-den-um yields a resistance to rust and corrosion never attained before in a commercial iron.

Its unequalled durability is of vital interest to every architect who specifies material for exposed sheet metal work. Industrial engineers appreciate the true economy of permanence. They are using Toncan Copper Mo-lyb-den-um Iron for roofing, siding, ventilating ducts and countless other uses. The sheet metal contractor who recommends it for furnace pipes, spouting and flashing raises himself above the competition of ordinary materials. The uniformity of Toncan Enameling Iron has improved the quality and lowered the production cost of enameled products.

Buyers of refrigerators, stoves, washing machines and similar products for the home, are asking for it in the equipment they buy. The forward-looking manufacturer is focusing this demand on his products by using Toncan and labeling them for all the world to see.

Toncan Copper Mo-lyb-den-um Iron is a metallurgical achievement. The new Toncan book, "The Path to Permanence," gives complete information on this greatly improved product. A copy will be sent free on request.

Central Alloy Steel Corporation
Makers of Agathon Alloy Steels

Massillon, Ohio
Cleveland Detroit Chicago New York St. Louis
Syracuse Philadelphia Los Angeles Tulsa Cincinnati
San Francisco Seattle



The famous family of steel products under the Agathon trade-mark includes Alloy Steels, Special Finishes, Electrical Steels, Hot Rolled Strip, Toncan Oven Lining, Galvanized Sheets and Enduro Stainless Iron. Write for information on any product.

The National Chamber of Commerce Building at Washington, D. C., has ventilation ducts, skylight frames and other sheet metal work of Toncan Iron.



Mo-lyb-den-um
IRON

CENTRAL ALLOY STEEL CORPORATION

Makers of Agathon Alloy Steels

CLEVELAND
SYRACUSE

DETROIT
PHILADELPHIA

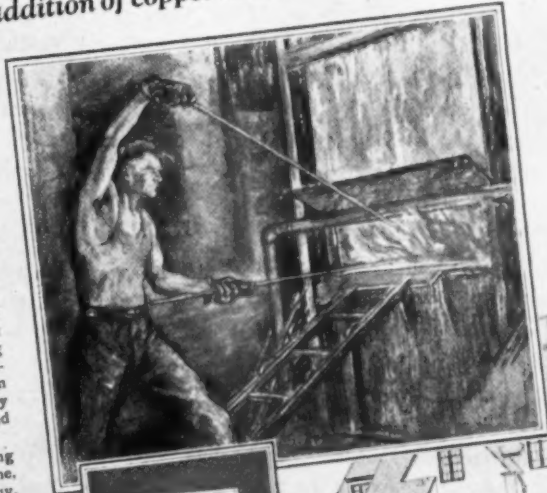
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TULSA

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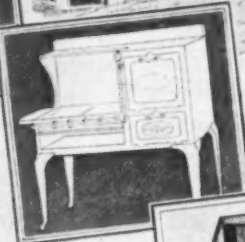
Mention AMERICAN ARTISAN in your reply—Thank you!



The plate heater removes the glowing scale on Toncan sheets for rolling. The skill of Central craftsmen assures Toncan quality.



Refrigerator manufacturers have found Toncan Iron extremely desirable for linings. Such representative companies as McCray use Toncan exclusively.



Many homes throughout the country have Toncan Iron for flueking, gutters and downspouts and other exposed places.

A long list of stove manufacturers use Toncan Iron for the enameled parts and even linings.



Toncan Iron is used in this plant of the Cleveland Structural Steel Co., of Cleveland, for siding and roofing. See Sheet Metal Co., contractors.

TO HELP YOU INCREASE YOUR PROFITS

HERE is the first of a number of advertisements on Toncan Copper Molybdenum Iron which will be published every four weeks in The Saturday Evening Post. All advertisements will appear on the page facing the inside back cover. They will be easy to find and will create a real market for this remarkable iron. Stock and recommend Toncan Molybdenum Iron. It will increase your sales and profits. Write us for full particulars.

CENTRAL ALLOY STEEL CORPORATION, MASSILLON, OHIO

Steel Outlook Is Favorable from Production Standpoint—Ingot Output Shows Substantial Gain

Pig Iron Market Is More Active—Lead and Zinc Steady

A STRAIN of moderate improvement continues to run through the pig iron and finished steel markets, but prices still falter. Quotations on heavy finished steel at Chicago are sympathetic with the recent \$2 reduction at Pittsburgh. Wire products, except fencing, have receded \$2.

From the standpoint of production the outlook is more encouraging than the easy price situation would indicate. Following the fractional improvement in pig iron production in January, steel ingot output comes along with a heartening gain.

January is revealed as an 81½ per cent month in steel production, contrasted with a 74 per cent December and an 80 per cent November. Thus far in February the steel rate has been increasing slowly, with Steel corporation subsidiaries at approximately 86 per cent.

On weighing the principal market factors the scales are inclined toward the side of betterment. New business in finished steel thus far in February is running a fair margin ahead of the comparable period of January.

Pig Iron

At Pittsburgh a buyers' market still prevails in pig iron. Valley producers selling here deny quoting \$17.50 and \$18.50 on basic and bessemer, respectively, and point to sales of bessemer in the past few days, aggregating 2,600 tons, at \$19, valley. The largest individual lot involved 1,000 tons.

Malleable and No. 2 plain are quoted \$18 to \$18.50. Some producers say they would rather put out their furnaces than go below \$18.50. The largest inquiry pending, for 500 tons each of No. 3 and

No. 2, is scheduled for closing Thursday. One concern wants 250 tons of malleable; \$18 and \$18.50 have been quoted. One buyer closed 200 tons of malleable at the latter price late last week. Foundry iron sales at \$18.50 are confined to single carloads.

Spot sales of northern iron at Chicago are fair at \$20.50, for nearby shipment. January spot business was 50 per cent in excess of December's, and February's orders are not far behind those of January. Upward of 500 tons of foundry iron was sold in the past week in St. Paul and Minneapolis for February and March, at \$20.50.

Chicago furnaces booked 500 tons of foundry iron and 300 tons of malleable for Benton Harbor, Michigan, at the same price.

Furnace interests at Birmingham are selling pig iron through second quarter. Quotations still are on a basis of \$18, except where small lots for immediate delivery are desired, when \$1 more is asked.

Surplus stock of pig iron will be reduced this month. March will see the output in this state materially increased.

Copper

Copper has fallen almost to 12.50 cents, Connecticut. A few days ago fair business was done at 13.00 cents, but the market scarcely hesitated at that figure and business since has been light.

Generally it is said current production is too large, but mining conditions are so complicated that it is difficult to make curtailment quickly. In fact, fear of larger output in South America and Africa are greater factors in the situation than any burden of stocks.

Zinc

About 20 points have been added

to the price of zinc over the low point of two weeks ago, so that the metal now is held around 6.60 cents, East St. Louis, for prime western.

Users have not bought a great deal, but some dealer and speculative business has been done and the firmness of ore prices with curtailment of output has helped the situation.

Tin

Buying of tin has been moderate to light since big business was done February 1. Users have resisted the rapid rise and the renewed strength is based on estimates of unusually light shipments from the Straits this month. The differential between spot and futures has narrowed slightly.

Lead

Lead prices have changed little during the past few days, but are firmer, especially on the East St. Louis basis. A few days ago one concern announced a curtailment in production at its Mexican mines and this has aided sentiment somewhat.

Solder

Chicago warehouse prices on solder are as follows: Warranted 50-50, \$43.00; commercial 45-55, \$40.00; and plumbers', \$37.00, all per 100 pounds.

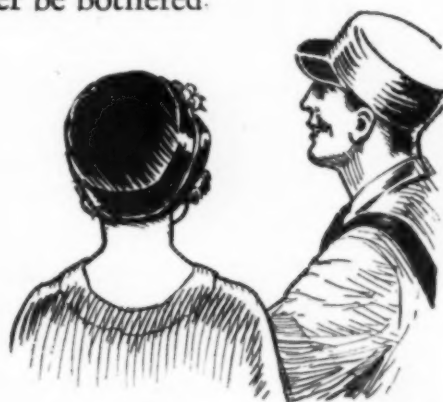
Old Metals

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, \$17.00 to \$17.50; old iron axles, \$22.00 to \$22.50; steel springs, \$16.50 to \$17.00; No. 1 wrought iron, \$12.25 to \$12.75; No. 1 cast, \$15.50 to \$16.00, all per net tons. Prices for non-ferrous metals are quoted as follows, per pound: Light copper, 9 cents; zinc, 4½ cents, and cast aluminum, 15 cents.



"Yes Ma'am, that's a good roof job on your new house. I've used the best materials throughout. For instance—Lupton Elbows—made extra heavy and every joint a $2\frac{1}{2}$ " lap. So just forget about leaks—you'll never be bothered."

*Specify them
to
your Jobber*



L U P T O N

ELBOWS THAT FIT

DAVID LUPTON'S SONS CO.

Allegheny Ave. and Tulip Street

Philadelphia, Pa.

When writing mention AMERICAN ARTISAN—Thank you!

Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

METALS

PIG IRON	
Chicago Fdy., No. 2.....	\$20 50
Southern Fdy., No. 2.....	24 01
Lake Superior Charcoal.....	27 04
Malleable.....	20 50

FIRST QUALITY BRIGHT TIN PLATES	
IC 20x28 112 sheets.....	\$25 10
IX 20x28.....	29 60
IXX 20x28 56 sheets.....	16 20
IXXX 20x28.....	17 55
IXXXX 20x28.....	18 95

TERNE PLATES	
IC 20x28, 40-lb. 112 sheets	Per Box \$26 00
IX 20x28, 40-lb. 112 sheets	23 50
IC 20x28, 25-lb. 112 sheets	21 75
IX 20x28, 25-lb. 112 sheets	24 25
IC 20x28, 20-lb. 112 sheets	20 00
IX 20x28, 20-lb. 112 sheets	22 50
IC 20x28, 15-lb. 112 sheets	18 50

"ARMCO" INGOT IRON PLATES	
No. 8 ga. up to and including	
1/4 in.—100 lbs.	\$4 55

COKE PLATES	
Cokes, 80 lbs., base, 20x28.	\$13 60
Cokes, 90 lbs., base, 20x28.	13 80
Cokes, 100 lbs., base, 20x28.	14 00
Cokes, 107 lbs., base, 1c	
20x28.....	14 30
Cokes, 135 lbs., base IX	
20x28.....	16 40
Cokes, 155 lbs., base, 56	
sheets.....	9 20
Cokes, 175 lbs., base, 56	
sheets.....	10 05
Cokes, 195 lbs., base, 56	
sheets.....	10 90

BLUE ANNEALED SHEETS	
Base 10 ga.....per 100 lbs.	\$2 50
"Armco" 10 ga.....per 100 lbs.	4 00

ONE PASS COLD ROLLED BLACK	
No. 18-20.....per 100 lbs.	\$3 75
No. 22.....per 100 lbs.	3 90
No. 24.....per 100 lbs.	3 95
No. 26.....per 100 lbs.	4 05
No. 27.....per 100 lbs.	4 10
No. 28.....per 100 lbs.	4 20
No. 29.....per 100 lbs.	4 35
No. 30.....per 100 lbs.	4 45

"ARMCO" GALVANIZED	
"Armco" 24.....per 100 lbs.	\$6 25

GALVANIZED	
No. 16.....per 100 lbs.	\$4 30
No. 18.....per 100 lbs.	4 45
No. 20.....per 100 lbs.	4 60
No. 22.....per 100 lbs.	4 65
No. 24.....per 100 lbs.	4 80
No. 26.....per 100 lbs.	5 05
No. 27.....per 100 lbs.	5 15
No. 28.....per 100 lbs.	5 30
No. 30.....per 100 lbs.	5 70

BAR SOLDER	
Warranted 50-50.....per 100 lbs.	\$43 00
Commercial 45-55.....per 100 lbs.	40 00
Plumbers.....per 100 lbs.	37 00

ZINC	
In Slabs.....	\$8 50

SHEET ZINC	
Cash Lots (600 lbs.).....	\$13 00
Sheet Lots.....	14 00

BRASS	
Sheets, Chicago base.....	17% c
Mill base.....	17% c
Tubing, brazed base.....	22% c
Wire, base.....	18% c
Rods, base.....	15% c

COPPER	
Sheets, Chicago base.....	21% c
Mill Base.....	20% c
Tubing, seamless base.....	24% c
Wire, No. 9, B & S Ga.....	17% c
Wire, No. 10, B & S Ga.....	18% c
Wire, No. 11, B & S Ga.....	18% c
Wire, No. 8, B & S Ga. and heavier.....	17% c

HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

LEAD.	
American Pig.....	\$8 35
Bar.....	9 35
Sheet	
Full Coils.....per 100 lbs.	14 00
Cut Coils.....per 100 lbs.	14 25

TIN	
Pig tin.....per 100 lbs.	\$76 00
Bar tin.....per 100 lbs.	77 00

ASBESTOS	
Paper up to 1/16.....	6c per lb.
Roll board.....	6 1/4 c per lb.
Mill board 3/32 to 1/2.....	6c per lb.
Corrugated Paper (250 sq. ft. to roll).....	\$6.00 per roll

BRUSHES	
Hot Air Pipe Cleaning Bristle, with handle, each	\$0 85

Flue Cleaning	
Steel only, each.....	1 25

BURRS	
Copper Burrs only.....	40-2 1/2%

CEMENT, FURNACE	
American Seal, 5-lb. cans, net	\$ 40
American Seal, 10-lb. cans, net	80
American Seal, 25-lb. cans, net	2 00
Pecora.....per 100 lbs.	7 51

CHIMNEY TOPS	
Iwan's Complete Rev. & Vent.....	30%
Iwan's Iron Mountain only.....	35%
Standard.....	30 to 40%

CLINKER TONGS	
Front Rank, each.....	\$0 75
Per doz.....	8 40

CLIPS	
Damper Acme, with all tail pieces, per doz.....	\$1 25
Non Rivet tail pieces, per doz.....	25

COPPERS—Soldering	
Pointed Roofing	
3 lb. and heavier.....per lb.	40c
2 1/2 lb.per lb.	45c
1 lb.per lb.	48c
1 1/2 lb.per lb.	55c
1 lb.per lb.	60c

CORNICE BRAKES	
Chicago Steel Bending Nos. 1 to 6B.....	Net

CUT-OFFS	
Kuehn's Korrekt Kutoffs:	
Gal. plain, round or cor. rd. standard gauge.....	4%
26 gauge.....	30%

DAMPERS	
"Yankee" Hot Air	
7 inch, each 20c, doz.....	\$1 75
8 inch, each 25c, doz.....	2 40
9 inch, each 30c, doz.....	2 75
10 inch, each 32c, doz.....	3 00

Smoke Pipe	
7 inch, each.....	\$0 35
8 inch, each.....	40
9 inch, each.....	50
10 inch, each.....	60
12 inch, each.....	90

Reversible Check	
8 inch, each.....	\$1 56
9 inch, each.....	1 70

DIGGERS	
Post Hole	
Iwan's Split Handle (Eureka)	
4-ft. Handle...per doz.	\$14 00
7-ft. Handle...per doz.	36 00
Iwan's Hercules pattern, per doz.....	14 90

EAVES TROUGH	
Galv. Crimpedge, crated 75 & 5% Zinc, "Barnes".....	.60%

ELBOWS	
Conductor Pipe Milcor	
Galv. plain or corrugated, round flat Crimp.	
28 Gauge.....	.60%
26 Gauge.....	.45%
24 Gauge.....	.15%

Galv. & Terne Steel—Dieckmann's	
Plain Rd. and Rd. Corr.:	
28 Ga.60%
26 Ga.45%
24 Ga.15%
Square Corrugated	
No. 28 Gauge.....	.50%
26 Gauge.....	.35%

Portico Elbows	
Standard Gauge Conductor Pipe, plain or corrugated.	
Not nested.....	.70 & 5%
Nested solid.....	.70 & 5%

Sq. Corr., A. & B. & Octagon:	
28 Ga.50%
26 Ga.35%

Portico	
1", 1 1/4", 1 1/2".....	.45%

Copper	
16 oz., all designs.....	.45%

Zinc—"Barnes"	
No. 11, all styles.....	.60%

ELBOWS—Stove Pipe	
1-piece Corrugated, Uniform Blue "Milcor" No. 28 Gauge, Doz.	
5-inch.....	\$1 25
6-inch.....	1 35
7-inch.....	1 75

Special Corrugated	
6-inch.....	\$1 00
7-inch.....	1 60

Adjustable—Uniform Blue	
"Milcor" No. 28 Gauge, Uniform Blue, Doz.	
5-inch.....	\$1 75
6-inch.....	1 85
7-inch.....	2 15

WOOD FACES—50% off list.

FENCE	
726-6-12 1/2% (100 rods).....	\$28 68
1948-6-14 1/4% (100 rods).....	43 62

FILES AND RASPS	
Heller's (American).....	50-10%
American.....	60-10%
Arcade.....	50%
Black Diamond.....	40-10-5%
Eagle.....	50%
Great Western.....	50%
Kearney & Foot.....	50%
McClellan.....	50%
Nicholson.....	50%
Simonds.....	60%

FIRE POTS	
Clayton & Lambert's	
East of west boundary line of Province of Manitoba, Canada, No. Dakota, So. Dakota, Nebraska, Kansas, Oklahoma, Amarillo, San Angelo and Laredo, Texas.....	52%
West of above boundary.....	48%

Geo. W. Diener Mfg. Co.	
No. 02 Gasolene Torch, 1 qt.....	\$ 5 55
No. 0250, Kerosene, or Gasolene Torch, 1 qt.....	7 50
No. 10 Tinner's Furn. Square tank, 1 gal.....	12 60
No. 15 Tinner's Furn. Round tank, 1 gal.....	12 00
No. 21 Gas Soldering Furnace.....	3 60
No. 110 Automatic Gas Soldering Furnace.....	10 50

Double Blast Mfg. Co.	
Gasolene, Nos. 25 and 36.....	.60%

Quick Meal Stove Co.	
Vesuvius, F. O. B. St. Louis 30% (Extra Disc. for large quantities)	

GALVANIZED WARE	
Falls (Galv. after made), 10-qt.....	\$2 12
Tubs (Galv. after made), No. 1.....	6 00
No. 2.....	6 85

GLASS	
Single Strength, A. 25-in. brackets.....	.86%
Single Strength, A. 34 to 40-in. bracket.....	.85%
Single Strength, A. all other brackets.....	.85%
Double Strength, A. all sizes.....	.86%

HANGERS	
Conductor Pipe	
Milcor Perfection Wire.....	25%
Eaves Trough	
Milcor Eclipse Wire.....	15%
Milcor Triplex Wire.....	10%
Milcor Milwaukee Extension 10% forming) List.....	plus 12 1/2%
Milcor Selflock E. T. Wire, List.....	plus 50%

HOOKS	
Box V. & B. No. 1, each.....	\$0 26

Conductor	
Milcor	
"Direct Drive" Wrought Iron for wood or brick.....	15%
Hay V. & B. No. 1, each.....	\$0 26

HUMIDIFIERS	
"Front-Rank," Automatic	
In single lots.....	.60%
In lots of 10 or more.....	.50-5%
In lots of 25 or more.....	.50-10%
Vapor pans, etc., each.....	.50%

LIFTERS	
Stove Cover	
Coppered.....per gro.	\$6 00
Alaska.....per gro.	4 75

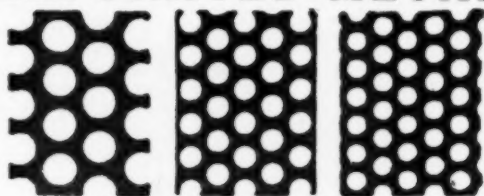
MALLET	
Tinners Hickory.....per doz.	\$2 25

MITRES	
Milcor Galvanized steel mitras, 23 Ga.....	70
26 Ga.....	60-20

NAILS	
Cut Steel.....	\$4 35
Cut Iron.....	4 35
Wire	
Common.....	3 05
Cement Coated.....	3 05

(Continued on page 96)

PERFORATED METALS



All Sizes and Shapes of Holes
In Steel, Zinc, Brass, Copper, Tinplate, etc.
For All Screening, Ventilating and Draining
EVERYTHING IN PERFORATED METAL

THE HARRINGTON & KING PERFORATING CO.

5649 FILLMORE ST.—CHICAGO, ILL., U. S. A.
NEW YORK OFFICE, 114 LIBERTY ST.

VENTILATORS

We carry a full line of the below named well known ventilators:

EARLE	IWAN'S	"ROYAL"
PERFECTION	STANDARD	GLOBE
HERCULES	"STAR"	UNO
AMERICAN-LARSON	"BEST"	

We can make prompt shipments on your orders
for anything in the sheet metal line.

Try us—write for catalog today

BERGER BROS. CO.

229 to 237 ARCH STREET

WAREROOMS AND FACTORY: 100 TO 114 BREAD STREET

PHILADELPHIA, PA.

Manufacturers of "Quaker City" line of Miter, Ends, Caps and Outlets



At the
Service
of Steel
Users

INLAND STEEL COMPANY

38 South Dearborn Street, Chicago

Works: Indiana Harbor, Indiana; Milwaukee, Wisconsin
Chicago Heights, Illinois

Branch Offices and Representatives

ST. PAUL • ST. LOUIS • SALT LAKE CITY • MILWAUKEE
KANSAS CITY • NEW ORLEANS • EL PASO

The NEW IMPROVED "STANDARD"

Rotable Ventilator



Patents pending

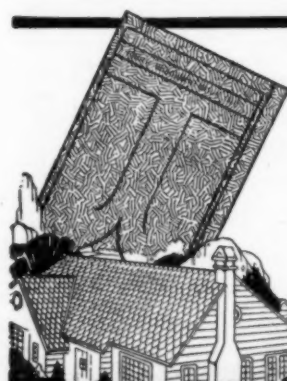
This favorite cone-shaped ventilator
is now improved in several impor-
tant points.

The weight of the ventilator body is
now carried on a concave thrust
bearing nested in the apex of the
conical body. This bearing turns
upon the pivot point of the station-
ary center spindle.

The bronze Guide Bushings are now
made of non-corrosive bronze which
minimizes friction and any tendency
to screech when body is rotating.

There are other new features. Write
today for new catalog and price list.

STANDARD VENTILATOR CO., LEWISBURG, PA.



We make Hand-Dipped Galvanized Shingles.

Also Shingles from sheets
already galvanized.

Our Hand-Dipped Shingles are
stamped from prime tin plate,
and immersed, one at a time, in
molten zinc.

We also make painted shingles
—red and green.

CORTRIGHT METAL ROOFING CO.
50 N. 23rd Street, Philadelphia
528 S. Clark Street, Chicago

CORTRIGHT METAL SHINGLES

OSBORN'S LEAD COTE

It has the flexible strength
of steel.

It has the rust-resisting
qualities of lead.

It lends itself to artistic
development.

It is a durable and economi-
cal sheet metal.

It is uniformly soft and
level—easy to work.

Its coating will not flake
or peel.

Immediate shipment from
stock—No. 18 to 28 gauges.

The J. M. & L. A. OSBORN CO.

"Everything used in Sheet Metal Work"

CLEVELAND

Buffalo Warehouse • 64-68 Rapin Street

ADVERTISERS' INDEX

The dash (—) indicates that the advertisement runs on a regular schedule but does not appear in this issue.

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NETTING, POULTRY	
Galvanized before weav-	ing 57½-5%
Galvanized after weaving.	52½-5%

PASTE	
Asbestos Dry Paste:	
200-lb. barrel	\$16 00
100-lb. barrel	8 75
35-lb. pail	2 50
10-lb. bag	1 10
5-lb. bag	60
2½-lb. cartons	85

PIPE	
Conductor	Cor. Rd., Plain Rd. or Sq.

"Interlock" Galvanized	
Crated and nested (all gauges)	75-2½%
Crated and not nested (all gauges)	70-15%

Stove Pipe	
"Milcor" "Titelock" Uniform	
28 gauge, 5 inch U. C.	11 50
28 gauge, 6 inch U. C.	12 25
28 gauge, 7 inch U. C.	14 25
30 gauge, 5 inch U. C.	10 50
30 gauge, 6 inch U. C.	11 25
30 gauge, 7 inch U. C.	13 25

"Barnes" All Zinc	
No. 11, all styles.....	60%

T-Joint Made up	
6-inch, 28 ga.	Per Doz. \$ 5 00

Furnace Pipe	
Double Wall Pipe and Fittings	50%
Single Wall Pipe, Round Galvanized Pipe	50%
Galvanized and Tin Fittings	50%

Lead	
Per 100 lbs.	\$12 50

POKERS, STOVE	
W'r't Steel, str't or bent, Nickel Plated, coil handles,	per doz. \$0 75
.....	per doz. 1 10

POKERS, FURNACE	
Each	\$0 50

PULLEYS	
Furnace Tackle.....	per doz. \$0 66
.....	per gro. 6 00
Furnace Screw (enameled)	per doz. 75

Ventilating Register	
Per gross	9 00
Small, per pair	30
Large, per pair	50

PUTTY	
Commercial Putty, 100-lb. Kils	\$3 40

QUADRANTS	
Malleable Iron Damper.....	10%

REDUCERS—Oval Stove Pipe	
Per Doz.	
7-6, 1 doz. in carton.....	\$2 25

BASEBOARD REGISTERS	
.....	50%

FLOOR REGISTERS AND BORDERS	
Cast Iron	20%
Steel and Semi-Steel.....	40%
Baseboard	40%
Adjustable Ceiling Ventilators	40%

Register Faces—Cast and Steel	
Japanned, Bronzed and Plated, 4x6 to 14x14	40%
Large Register Faces—Cast, 14x14 to 38x42.....	60%
Large Register Faces—Steel, 14x14 to 38x42.....	65%

RIDGE ROLL	
Galv., Plain Ridge Roll, B'd'd	75-10-5%
Galv., Plain Ridge Roll, crated	75-10%
Globe Finials for Ridge Roll	50%

ROOFING	
Per Square	
Best grade, slate surf. prep'd	\$3 30
Best talc surfaced.....	2 65
Medium talc surfaced.....	2 00
Light talc surfaced.....	1 20
Red Rosin Sheeting, per ton	57 00

SCREWS	
Sheet Metal	
7. ½x½, per gross.....	\$0 52
No. 10, 1½x1½, per gross	68
No. 14, ¾x¾, per gross...	59

SHEARS, TINNERS' & MACHINISTS'	
Viking	\$22 00

Lennox Throatless	
No. 18	35%
Shear blades	10%
(f. o. b. Marshalltown, Iowa.)	

SHIELDS, REGISTER	
No. 1 "Gem" floor	\$12 00 doz.
No. 2 "Gem" wall	6 00 doz.

SHOES	
Galv. 28 Gauge, Plain or corg. round flat crimp.....	60%
26 gauge round flat crimp.....	45%
24 gauge round flat crimp.....	15%

SNIPS, TINNERS'	
Clover Leaf	40 & 10%
National	40 & 10%
Star	50%
Milcor	Net

SQUARES	
Steel and Iron.....	Net
(Add for bluing, \$3 per doz. net)	

Mitre	
Try	Net

Try and Bevel.....	
Try and Mitre.....	Net

Fox's	
Winterbottom's	10%

STOPPERS, FLUE	
Common	per doz. \$1 10
Gem, No. 1.....	per doz. 1 10
Gem, flat, No. 3.....	per doz. 1 00

VENTILATORS	
Standard	30 to 40%

WIRE	
Plain annealed wire, No. 8, per 100 lbs.	\$3 05

Galvanized barb wire, per 100 lbs.	
.....	3 90

Wire cloth—Black painted, 12-mesh, per 100 sq. ft.	
.....	1 65

Cattle Wire—galvanized catch weight spool, per 100 lbs.	
.....	3 75

Galvanized Hog Wire, 80 rod spool, per spool	
.....	3 25

Galvanized plain wire, No. 9, per 100 lbs.	
.....	3 50

Stove Pipe, per stone.....	
.....	1 10

WRINGERS	
No. 790, Guarantee	each \$ 5 10
No. 770, Bicycle	each 4 70
No. 670, Domestic	each 4 35
No. 110, Brighton	each 3 70
No. 750, Guarantee	each 5 10
No. 740, Bicycle	each 4 70
No. 22, Pioneer	each 3 40
No. 2, Superb	each 2 65

CHICAGO STEEL CORNICE BRAKES

STANDARD OF THE WORLD

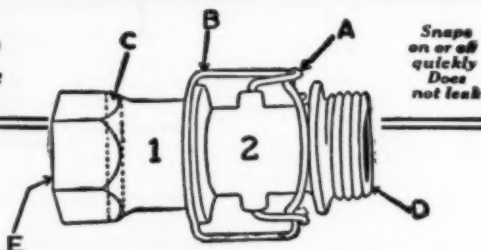


THE BEST BRAKE FOR ALL PURPOSES:
Most Durable, Easiest Operated, Low in Price;
Made in All Lengths and to Bend All Gauges
of Metal. Over 35,000 in use.

WRITE FOR PARTICULARS

DREIS & KRUMP MFG. CO., 7404 Loomis Street, CHICAGO

The
simplest
hose
coupling
made



Snaps
on or off
quickly
Does
not leak

HESSLER Perfect Hose Connection

YOU and your customers, everybody who uses a hose will welcome the Hessler Hose Connection.

It saves hose length and the hose, no kinking or twisting—no splashing, no leakage and you snap it on or off in a wink.
The Hessler will be a big, fast seller and a real profit maker.
Order a sample lot now—made in four sizes. Write today for price and circulars.

H. E. HESSLER CO.

Syracuse, New York

BOLTS

WE MANUFACTURE A COMPLETE LINE OF BOLT PRODUCTS, INCLUDING STOVE BOLTS, CARRIAGE BOLTS, MACHINE BOLTS, LAG BOLTS, NUTS, COTTER PINS, ETC. ALSO STOVE RODS, SMALL RIVETS AND HINGE PINS, CATALOG ON REQUEST.

THE KIRK-LATTY CO.

1971 W. 85th St. Cleveland, O.

THE learning and knowledge that we have is, at the most, but little compared with that of which we are ignorant.

—PLATO

Good trade books will without a doubt help you to increase your practical knowledge of your trade. We sell good trade books.

—AMERICAN ARTISAN

Whitney Lever Punches

Widest known—Most universally used



Skyline Punch

NEW SKYLIGHT CLOSE CORNER FLANGE PUNCH

Every Sheet Metal Worker Needs One.

Weights Only 10 Lbs.

1-2 Inch Opening Above Die Top.



Skyline Punch

EASIEST OPERATED
QUICKEST CHANGED
FREQUENTLY PAY FOR THEMSELVES
ON FIRST JOB

Over 40,000 In Use

MADE IN 6 SIZES

OTHERS FOLLOWING



No. 2 Punch

ASK YOUR JOBBER

or

Write us, for circulars and prices.

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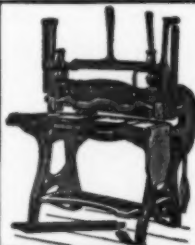
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American Steel & Wire Co.,
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Sturtevant Co., B. F., Boston, Mass.

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The Kirk-Latty Co.,
Cleveland, Ohio

Lamson & Sessions Co.,
Cleveland, Ohio

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Drels & Krump Mfg. Co.,
Chicago, Ill.

Brakes—Cornice.
Drels & Krump Mfg. Co.,
Chicago, Ill.

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Copper & Brass Research As-
sociation, New York

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Sturtevant Co., B. F., Boston, Mass.

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L. J. Mueller Furnace Co.,
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Majestic Co., The,
Huntington, Ind.

Copper.
Copper & Brass Research As-
sociation, New York

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Chicago, Ill.

Milwaukee Corrugating Co.,
Milwaukee, Wis.

Out-offs—Rain Water.
Milwaukee Corrugating Co.,
Milwaukee, Wis.

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S. M. Hewes Co.,
Charlestown, Mass.

Damper Clips.
S. M. Hewes Co.,
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Aeolus-Dickinson Co.,
Chicago, Ill.

L. J. Mueller Furnace Co.,
Milwaukee, Wis.

Doors—Metal.
Lupton's Sons Co., David,
Philadelphia, Pa.

Eaves Trough.
Berger Bros. Co.,
Philadelphia, Pa.

Berger Co., L. D.,
Philadelphia, Pa.

Clark-Smith Hardware Co.,
Peoria, Ill.

Lupton's Sons Co., David,
Philadelphia, Pa.

Milwaukee Corrugating Co.,
Milwaukee, Wis.

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New York, N. Y.

Wheeling Corrugating Co.,
Wheeling, W. Va.

Elbows and Shoes—Conductor.
American Rolling Mill Co.,
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Dieckmann Co., Ferdinand,
Cincinnati, Ohio

Double-Duty Mfg. Co.,
Aurora, Ill.

Lupton's Sons Co., David,
Philadelphia, Pa.

Milwaukee Corrugating Co.,
Milwaukee, Wis.

Enamel Wire.
Lalance & Grosjean Mfg. Co.,
Chicago, Ill.

Wood Faces—Cold Air.
American Wood Register Co.,
Plymouth, Ind.

Eaglesfield Ventilator Co.,
Indianapolis, Ind.

Milwaukee Corrugating Co.,
Milwaukee, Wis.

Fences.
American Steel & Wire Co.,
Chicago, Ill.

Flue Thimbles.
Milwaukee Corrugating Co.,
Milwaukee, Wis.

Furnace Cement—Asbestos.
Buckeye Products Co., The,
Cincinnati, Ohio

Connors Paint Mfg. Co., Wm.,
Troy, N. Y.

Milwaukee Corrugating Co.,
Milwaukee, Wis.

Sall Mountain Co.,
Chicago, Ill.

Furnace Cement—Liquid.
Technical Products Co.,
Pittsburgh, Pa.

Furnace Cleaners.
Sturtevant Co., B. F., Boston, Mass.

Furnace Fans.
Heating Systems & Supply Co.,
Chicago, Ill.

A. H. Robinson Company,
Cleveland, Ohio

Sturtevant Co., B. F., Boston, Mass.

Warm Air Furnace Fan Co., The,
Cleveland, Ohio

Furnace Rings.
Milwaukee Corrugating Co.,
Milwaukee, Wis.

Walworth Run Fdy. Co.,
Cleveland, Ohio

Furnaces—Warm Air.
American Furnace Co.,
St. Louis, Mo.

American Foundry & Furnace
Co., Bloomington, Ill.

Belleville Stove & Range Co.,
Belleville, Ill.

Brillion Iron Works,
Brillion, Wis.

Chicago Furnace Supply Co.,
Chicago, Ill.

Cleveland Co-operative Stove Co.,
Cleveland, Ohio

Excelsior Steel Furnace Co.,
Chicago, Ill.

Floral City Heater Co.,
Monroe, Mich.

Forest City Fdy. & Mfg. Co.,
Cleveland, Ohio

Hall-Neal Furnace Co.,
Indianapolis, Ind.

Henry Furnace & Fdy. Co.,
Cleveland, Ohio

Hero Furnace Co., Sycamore, Ill.

Hess-Snyder Co., Massillon, Ohio

Homer Furnace Co.,
Coldwater, Mich.

International Heater Co.,
Utica, N. Y.

Keith Furnace Co.,
Des Moines, Ia.

Kruse Co., Indianapolis, Ind.

Lamneck Co., W. E.,
Columbus, Ohio

Langenberg Mfg. Co.,
St. Louis, Mo.

Lennox Furnace Co.,
Marshalltown, Ia.; Syracuse, N. Y.

Liberty Foundry Co.,
St. Louis, Mo.

Majestic Co., The,
Huntington, Ind.

Marshalltown Heater Co.,
Marshalltown, Iowa

May-Flebege Furnace Co.,
Newark, Ohio

Meyer Furnace Co., The,
Peoria, Ill.

Monitor Furnace Co.,
Cincinnati, Ohio

Mt. Vernon Furnace & Mfg. Co.,
Mt. Vernon, Ill.

Mueller Furnace Co., L. J.,
Milwaukee, Wis.

Oakland Foundry Co.,
Belleville, Ill.

Peninsular Stove Co.,
Detroit, Mich.

Robinson Furnace Co.,
Chicago, Ill.

Robinson Furnace Co., A. H.,
Cleveland, Ohio

Security Stove & Mfg. Co.,
Kansas City, Mo.

Standard Foundry & Mfg. Co.,
DeKalb, Ill.

Standard Furnace & Supply Co.,
Omaha, Neb.

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St. Louis, Mo.

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London, Ohio

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Chicago, Ill.

Utica Heater Co.,
Utica, N. Y.

Waterman-Waterbury Co.,
Minneapolis, Minn.

Western Steel Products Co.,
Duluth, Minn.

Wise Furnace Co.,
Akron, Ohio

Williamson Heater Co.,
Cincinnati, Ohio

Garages—Metal.
Milwaukee Corrugating Co.,
Milwaukee, Wis.

The Thomas & Armstrong Co.,
London, Ohio

Gas (Acetylene) Dissolved.
Prest-O-Lite Co., Inc.,
New York, N. Y.

Gas (Nitrogen).
Linde Air Products Co.,
New York, N. Y.

Gas (Oxygen)
Linde Air Products Co.,
New York, N. Y.

Glass—Wire.
Lupton's Sons Co., David,
Philadelphia, Pa.

Grilles.
Diamond Mfg. Co., Wyoming, Pa.

Harrington & King Perforating
Co., Chicago, Ill.

Hart & Cooley Co.,
New Britain, Conn.

Independent Register & Mfg. Co.,
Cleveland, Ohio

Tuttle & Bailey Mfg. Co.,
Chicago, Ill.

Grilles—Store Front.
Tuttle & Bailey Mfg. Co.,
Chicago, Ill.

Guards—Machine and Belt.
Harrington & King Perforating
Co., Chicago, Ill.

Handles—Boiler.
Berger Bros. Co.,
Philadelphia, Pa.

Hangers—Eaves Trough.
Berger Co., L. D.,
Philadelphia, Pa.

Milwaukee Corrugating Co.,
Milwaukee, Wis.

Heaters—Cabinet.
Majestic Co., The,
Huntington, Ind.

Mueller Furnace Co., L. J.,
Milwaukee, Wis.

Peninsular Stove Co.,
Detroit, Mich.

Waterman-Waterbury Co.,
Minneapolis, Minn.

Heaters—School Room.
Floral City Heater Co.,
Monroe, Mich.

Hero Furnace Co., Sycamore, Ill.

International Heater Co.,
Utica, New York

Meyer Furnace Co., The,
Peoria, Ill.

L. J. Mueller Furnace Co.,
Milwaukee, Wis.

Standard Furnace & Supply Co.,
Omaha, Neb.

Waterman-Waterbury Co.,
Minneapolis, Minn.

Hooks—Conductor.
Berger Co., L. D.,
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Hotels.
Fort Shelby Hotel,
Detroit, Mich.

Humidifiers.
L. J. Mueller Furnace Co.,
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Robinson Furnace Co.,
Chicago, Ill.

Roemer Heating Co.,
Cleveland, Ohio

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Clark-Smith Hardware Co.,
Peoria, Ill.

Kitchen Utensils.
Lalance & Grosjean Mfg. Co.,
Chicago, Ill.

Lath—Expanded Metal.
Milwaukee Corrugating Co.,
Milwaukee, Wis.

Machines—Crimping.
Bertsch & Co.,
Cambridge City, Ind.

Machinery—Culvert.
Bertsch & Co.,
Cambridge City, Ind.

Machines—Tinsmiths.
Bertsch & Co.,
Cambridge City, Ind.

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Oak Park, Ill.

Drels & Krump Mfg. Co.,
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Marshalltown Mfg. Co.,
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Peck, Stow & Wilcox Co.,
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Rockford, Ill.

Whitney Metal Tool Co.,
Rockford, Ill.

Mailing Lists.
R. L. Polk Co., Detroit, Mich.

Ross-Gould Co.,
St. Louis, Mo.

Metals—Perforated.
Diamond Mfg. Co., Wyoming, Pa.

Harrington & King Perforating
Co., Chicago, Ill.

Miters.
Friedley-Voshardt Co.,
Chicago, Ill.

Milwaukee Corrugating Co.,
Milwaukee, Wis.

Miters—Eaves Trough.
Lupton's Sons Co., David,
Philadelphia, Pa.

Milwaukee Corrugating Co.,
Milwaukee, Wis.

Nails—Wire.
American Steel & Wire Co.,
Chicago, Ill.

Nitrogen (Gas)
Linde Air Products Co.,
New York, N. Y.

Oil Burners.
Security Stove & Mfg. Co.,
Kansas City, Mo.

Ornaments—Sheet Metal.
Friedley-Voshardt Co.,
Chicago, Ill.

Geroch Bros. Mfg. Co.,
St. Louis, Mo.

Milwaukee Corrugating Co.,
Milwaukee, Wis.

Oxygen (Gas).
Linde Air Products Co.,
New York, N. Y.

Paint.
Connors Paint Mfg. Co., Wm.,
Troy, N. Y.

Pecora Paint Co.,
Philadelphia, Pa.

Patterns—Furnace & Stove.
Cleveland Castings Pattern

Quincy Pattern Co.,
Quincy, Ill.

Vedder Pattern Works,
Troy, N. Y.

Pipe and Fittings—Furnace.
Chicago Furnace Supply Co.,
Chicago, Ill.

Dunning, Inc., E. C.,
Milwaukee, Wis.

Excelsior Steel Furnace Co.,
Chicago, Ill.

Henry Furnace & Fdy. Co.,
Cleveland, Ohio

Lamneck Co., W. E.,
Columbus, Ohio

Meyer & Bro. Co., F.,
Peoria, Ill.

Milwaukee Corrugating Co.,
Milwaukee, Wis.

Mueller Furnace Co., L. J.,
Milwaukee, Wis.

Osborn Co., The J. M. & L. A.,
Cleveland, Ohio

Robinson Furnace Co.,
Chicago, Ill.

Standard Furnace & Supply Co.,
Omaha, Neb.

Pipe and Fittings—Stove.
Excelsior Steel Furnace Co.,
Chicago, Ill.

Meyer & Bro. Co., F.,
Peoria, Ill.

Milwaukee Corrugating Co.,
Milwaukee, Wis.

Pipe—Conductor.
Berger Bros. Co.,
Philadelphia, Pa.

Clark-Smith Hdw. Co.,
Peoria, Ill.

Dieckmann Co., Ferdinand,
Cincinnati, Ohio

Friedley-Voshardt Co.,
Chicago, Ill.

Lupton's Sons Co., David,
Philadelphia, Pa.

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Milwaukee, Wis.

New Jersey Zinc Sales Co., The,
New York, N. Y.

Wheeling Corrugating Co.,
Wheeling, W. Va.

Wheeling Metal & Mfg. Co.,
Wheeling, W. Va.

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American Steel & Wire Co.,
Chicago, Ill.

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Bertsch & Co.,
Cambridge City, Ind.
Parker-Kalon Corp.,
New York, N. Y.
Peck, Stow & Wilcox Co.,
Southington, Conn.
Whitney Mfg. Co., W. A.,
Rockford, Ill.
Whitney Metal Tool Co.,
Rockford, Ill.

Punches—Combination Bench and Hand.
Parker-Kalon Corp.,
New York, N. Y.
Whitney Metal Tool Co.,
Rockford, Ill.
Whitney Mfg. Co., W. A.,
Rockford, Ill.

Punches—Hand.
Whitney Metal Tool Co.,
Rockford, Ill.
Whitney Mfg. Co., W. A.,
Rockford, Ill.

Putty—Stove.
Connors Paint Mfg. Co., Wm.,
Troy, N. Y.
Pecora Paint Co.,
Philadelphia, Pa.

Quadrants—Damper.
L. J. Mueller Furnace Co.,
Milwaukee, Wis.
Parker-Kalon Corp.,
New York, N. Y.

Radiator Cabinets.
Tayco Register Shield Co.,
Menasha, Wis.
Tuttle & Bailey Mfg. Co.,
Chicago, Ill.

Radiators—Shields.
The Thomas & Armstrong Co.,
London, Ohio

Ranges—Combination Gas & Coal
Quick Meal Stove Co.,
St. Louis, Mo.
Thatcher Co.,
Newark, N. J.

Ranges—Gas.
Quick Meal Stove Co.,
St. Louis, Mo.

Registers—Combination.
Dunning, Inc., E. C.,
Milwaukee, Wis.

Registers—Warm Air.
American Wood Register Co.,
Plymouth, Ind.
Chicago Furnace Supply Co.,
Chicago, Ill.
Dunning, Inc., E. C.,
Milwaukee, Wis.
Eaglesfield Ventilator Co.,
Indianapolis, Ind.
Excelsior Steel Furnace Co.,
Chicago, Ill.

Hart & Cooley Co.,
New Britain, Conn.
Henry Furnace & Fdy. Co.,
Cleveland, Ohio
Independent Register & Mfg. Co.,
Cleveland, Ohio
Lamneck & Co., W. E.,
Columbus, Ohio
Majestic Co., The,
Huntington, Ind.

Meyer & Bro. Co., F.,
Peoria, Ill.
Milwaukee Corrugating Co.,
Milwaukee, Wis.
Mueller Furnace Co., L. J.,
Milwaukee, Wis.
Robinson Furnace Co.,
Chicago, Ill.

Rook Island Register Co.,
Rock Island, Ill.
Standard Furnace & Supply Co.,
Omaha, Neb.
Stearns Register Co.,
Detroit, Mich.

Tuttle & Bailey Mfg. Co.,
Chicago, Ill.
United States Register Co.,
Battle Creek, Mich.
Walworth Run Fdy. Co.,
Cleveland, Ohio

Registers—Wood.
American Wood Register Co.,
Plymouth, Ind.
Chicago Furnace Supply Co.,
Chicago, Ill.
Eaglesfield Ventilator Co.,
Indianapolis, Ind.
L. J. Mueller Furnace Co.,
Milwaukee, Wis.

Repairs—Stove and Furnace.
Hessler Co., H. E.,
Syracuse, N. Y.
Niehaus Furnace Repair Co.,
Cleveland, Cincinnati, O.
Northwestern Stove Repair Co.,
Chicago, Ill.

Milling.
American Rolling Mill Co.,
Middletown, Ohio
Lupton's Sons Co., David,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Milwaukee, Wis.

Rivets—Stove.
The Kirk-Latty Co.,
Cleveland, Ohio
Lamson & Sessions Co.,
Cleveland, Ohio

Roasters.
Lalance & Grosjean Mfg. Co.,
Chicago, Ill.

Rods—Stove.
The Kirk-Latty Co.,
Cleveland, Ohio
Lamson & Sessions Co.,
Cleveland, Ohio

Rolls—Forming.
Bertsch & Co.,
Cambridge City, Ind.

Roofing—Cement.
Connors Paint Mfg. Co., Wm.,
Troy, N. Y.
Pecora Paint Co.,
Philadelphia, Pa.

Roof—Flashing.
Hessler Co., H. E., Syracuse, N. Y.
Milwaukee Corrugating Co.,
Milwaukee, Wis.

Roofing—Iron and Steel.
American Rolling Mill Co.,
Middletown, Ohio
Cortright Metal Roofing Co.,
Philadelphia, Pa.
Friedley-Voshardt Co.,
Chicago, Ill.

Inland Steel Co.,
Chicago, Ill.
Merchant & Evans Co.,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Milwaukee, Wis.
Osborn Co., The J. M. & L. A.,
Cleveland, Ohio

Wheeling Corrugating Co.,
Wheeling, W. Va.

Sheets—Steel—Lead.
Wheeling Metal & Mfg. Co.,
Wheeling, W. Va.

Roofing—Tin.
Taylor Co., N. & G.,
Philadelphia, Pa.
Wheeling Corrugating Co.,
Wheeling, W. Va.

Roofing—Zinc.
New Jersey Zinc Sales Co., The,
New York, N. Y.

Rubbish Burners.
Hart & Cooley Co.,
New Britain, Conn.

Salt—Ammoniac.
Special Chemicals Co.,
Waukegan, Ill.

Schools—Sheet Metal Pattern
Drafting.
St. Louis Technical Institute,
St. Louis, Mo.

Screws—Sheet Metal.
Parker-Kalon Corp.,
New York, N. Y.

Screens—Perforated Metal.
Harrington & King Perforating
Co.,
Chicago

Shears—Hand and Power.
Double-Duty Mfg. Co.,
Aurora, Ill.

Marshalltown Mfg. Co.,
Marshalltown, Iowa
Peck, Stow & Wilcox Co.,
Southington, Conn.
Unishear Co., The,
New York
Viking Shear Co.,
Erie, Pa.

Sheets—Black and Galvanized.
American Rolling Mill Co.,
Middletown, Ohio

Central Alloy Steel Corp.,
Massillon, Ohio
Davis Co., Inc., C. S.,
Chicago, Ill.
Inland Steel Co.,
Chicago, Ill.
Merchant & Evans Co.,
Philadelphia, Pa.

Milwaukee Corrugating Co.,
Milwaukee, Wis.
Osborn Co., The J. M. & L. A.,
Cleveland, Ohio

Taylor Co., N. & G.,
Philadelphia, Pa.
Wheeling Corrugating Co.,
Wheeling, W. Va.

Sheets—Iron.
American Rolling Mill Co.,
Middletown, Ohio

Central Alloy Steel Corp.,
Massillon, Ohio
Merchant & Evans Co.,
Philadelphia, Pa.

Roofing—Steel—Lead.
Wheeling Metal & Mfg. Co.,
Wheeling, W. Va.

Sheets—Tin.
Davis Co., Inc., C. S.,
Chicago, Ill.
Merchant & Evans Co.,
Philadelphia, Pa.
Taylor Co., N. & G.,
Philadelphia, Pa.

Sheets—Zinc.
New Jersey Zinc Sales Co., The,
New York, N. Y.

Shields—Register.
Beh & Co.,
New York, N. Y.
Tayco Register Shield Co.,
Menasha, Wis.

Shingles and Tiles—Metal.
Cortright Metal Roofing Co.,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Milwaukee, Wis.
Wheeling Corrugating Co.,
Wheeling, W. Va.
Wheeling Metal & Mfg. Co.,
Wheeling, W. Va.

Shingles—Asphalt.
Sall Mountain Co.,
Chicago, Ill.

Shingles—Zinc.
Milwaukee Corrugating Co.,
Milwaukee, Wis.

Sifters—Ash.
Diener Mfg. Co., G. W.,
Chicago, Ill.

Sky Lights.
Lupton's Sons Co., David,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Milwaukee, Wis.

Snips.
Peck, Stow & Wilcox Co.,
Southington, Conn.

Solder.
Chicago Solder Co.,
Chicago, Ill.
Double-Duty Elbow Co.,
Aurora, Ill.
Milwaukee Corrugating Co.,
Milwaukee, Wis.

Solder—Aluminum.
Ziener Aluminum Solder Co.,
Rockford, Ill.

Soldering Furnaces.
Berns Co., Otto,
Newark, N. J.
Burgess Soldering Furnace Co.,
Columbus, Ohio
Clayton & Lambert Mfg. Co.,
Detroit, Mich.

Diener Mfg. Co., G. W.,
Chicago, Ill.

Double Blast Mfg. Co.,
North Chicago, Ill.

Quick Meal Stove Co.,
St. Louis, Mo.

Soldering Supplies.
Double-Duty Elbow Co.,
Aurora, Ill.
Special Chemicals Co.,
Waukegan, Ill.

Specialties—Hardware.
Diener Mfg. Co., G. W.,
Chicago, Ill.

Hessler Co., H. E.,
Syracuse, N. Y.

Stars—Hard Iron Cleaning.
Fanner Mfg. Co.,
Cleveland, Ohio

Statuary.
Friedley-Voshardt Co.,
Chicago, Ill.

Geroch Bros. Mfg. Co.,
St. Louis, Mo.

Stampings—Metal.
American Tube & Stamping Co.,
Bridgeport, Conn.
Dunning, Inc., E. C.,
Milwaukee, Wis.

Stearns Register Co.,
Detroit, Mich.

Stove Pipe Reducers.
Milwaukee Corrugating Co.,
Milwaukee, Wis.

Stoves—Camp.
Quick Meal Stove Co.,
St. Louis, Mo.

Stoves—Gasoline and Oil.
Quick Meal Stove Co.,
St. Louis, Mo.

Stoves and Ranges.
Belleville Stove & Range Co.,
Belleville, Ill.
Cleveland Co-operative Stove Co.,
Cleveland, Ohio
Oakland Foundry Co.,
Belleville, Ill.

Peninsular Stove Co.,
Detroit, Mich.
Quick Meal Stove Co.,
St. Louis, Mo.
Thatcher Co.,
Newark, N. J.

Tacks, Staples, Spikes.
American Steel & Wire Co.,
Chicago, Ill.

Tinplate.
Davis Co., Inc., C. S.,
Chicago, Ill.
Milwaukee Corrugating Co.,
Milwaukee, Wis.
Osborn Co., The J. M. & L. A.,
Cleveland, Ohio
Taylor Co., N. & G.,
Philadelphia, Pa.

Tools—Tinsmith's.
Bertsch & Co.,
Cambridge City, Ind.

Chicago Elbow Machine Co.,
Oak Park, Ill.

Double-Duty Mfg. Co.,
Aurora, Ill.

Dreis & Krump Mfg. Co.,
Chicago, Ill.

Marshalltown Mfg. Co.,
Marshalltown, Iowa

Osborn Co., The J. M. & L. A.,
Cleveland, Ohio

Peck, Stow & Wilcox Co.,
Southington, Conn.

Unishear Co., The, New York, N. Y.
Viking Shear Co.,
Erie, Pa.

Whitney Mfg. Co., W. A.,
Rockford, Ill.

Whitney Metal Tool Co.,
Rockford, Ill.

Trade Extension.
Copper & Brass Research As-
sociation,
New York, N. Y.
Sheet Steel Trade Extension
Committee,
Pittsburgh, Pa.

Trimnings—Stove.
Fanner Mfg. Co.,
Cleveland, Ohio

Ventilators.
Arex Company,
Chicago, Ill.
Aeolus Dickinson Co.,
Chicago, Ill.

Berger Bros. Co.,
Philadelphia, Pa.

Friedley-Voshardt Co.,
Chicago, Ill.

Kernchen Co.,
Chicago, Ill.

Lupton's Sons Co., David,
Philadelphia, Pa.

Milwaukee Corrugating Co.,
Milwaukee, Wis.

Royal Ventilator Co.,
Philadelphia, Pa.

Standard Ventilator Co.,
Lewisburg, Pa.

Sturtevant Co.,
Boston, Mass.

Ventilators—Ceiling.
Eaglesfield Ventilator Co.,
Indianapolis, Ind.

Hart & Cooley Co.,
New Britain, Conn.

Henry Furnace & Fdy. Co.,
Cleveland, Ohio

Independent Register & Mfg. Co.,
Cleveland, Ohio

Tuttle & Bailey Mfg. Co.,
New York

Sturtevant Co., B. F.,
Boston, Mass.

Windows—Steel.
Lupton's Sons Co., David,
Philadelphia, Pa.

Wire—Electrical.
American Steel & Wire Co.,
Chicago, Ill.

Wire Hoops.
American Steel & Wire Co.,
Chicago, Ill.

Wire Rope.
American Steel & Wire Co.,
Chicago, Ill.

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Such advertisements, however, must be limited to help or situation wanted, tools or equipment for sale, to exchange or to buy, business for sale or location desired.

BUSINESS CHANCES

Lightning Rods—Dealers who are selling Lightning Protection will make money by writing us for our latest Factory to Dealer Prices. We employ no salesmen and save you all overhead charges. Our Pure Copper Cable and Fixtures are endorsed by the National Board of Fire Underwriters and hundreds of dealers. Write today for samples and prices. L. K. Diddle Company, Marshfield, Wisconsin.

For Sale—One 125 Gal. Tank and pump that can be used for linseed oil or kerosene. Cost \$165.00 and only used one year; will sell it for only \$85.00. One hand elevator, cost \$160.00, will sell for only \$75.00. One store ladder, can be used for a ten foot ceiling, \$10.00. One Badger account register for \$15.00. If interested kindly write to John P. Paulus, 705 Wisconsin Street, Port Washington, Wisconsin. 3-3t.

For Sale—Sheet metal and roofing business that has been established in one location ten years. Steady going the year around. Located on southwest side of Chicago. Address C-40, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 5-3t

For Sale—New No. 52 two-burner Prothane gas stove, two drums gas with full equipment, \$27.00. Address R. F. Wahl, Morrisonville, Illinois. 6-3t

HELP WANTED

Wanted—Experienced man to manage our factory. Sheet metal and machine shop experience necessary. Write stating experience, also salary expected. Address—C-42, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 6-3t

Wanted—First class plumber and warm air furnace man, to work in a good plumbing and tin shop in a town of 1800 population in western Iowa. We want a man who can do both plumbing and tinning, especially plumbing. Good wages and steady work for an experienced man. Write at once to I. Wilson & Co., Dunlap, Iowa. 7-3t.

Wanted—A practical furnace salesman to sell high class warm air heating apparatus. One capable of taking complete charge of sales for furnace department. A drawing account to be charged against liberal commission and a share of the net profits of the furnace department. Interstate Cornice Works, Sioux City, Iowa. 7-3t.

Wanted—A country town hardware store and shop 50 miles from Chicago on the Dixie Highway wants an experienced tinner, furnace man and plumber. Must be able to repair pumps on farms. Salary and percentage. Steady work. Last employee worked 7 years. Address C-47, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 7-3t

HELP WANTED

Wanted—We are looking for a man capable of selling warm air furnaces and installing them. Only an experienced man familiar with the Standard Code and Forced Air Heating Systems need apply. This position, to the man who can produce, may lead into his taking charge of a retail furnace department already doing a fair volume of business. Apply at once to P. O. Box 54, Youngstown, Ohio. 5-3t

Wanted—Good all around man for a southern Wisconsin town. One that can do furnace and tin work. Plumbing shop is in connection with hardware store. State wages in first letter. Address C-36, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 5-3t.

Plumber wants first class sheet metal and furnace man to buy half interest in tinning, furnace and plumbing shop in small town in southeastern Iowa. Not much money required. Address C-34, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Ill. 5-3t

SITUATION WANTED

Situation Wanted—Tinner, plumber and heating man wishes steady position in town of 6,000 to 50,000 population. I guarantee my work for 35 years. Been at the trade all my life. Can draft my own metal patterns, do any heating job from warm air to large steam. If after installing on job my work is not satisfactory, it will cost you nothing. At liberty March or April 1. Address C-28, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 4-3t

Situation Wanted—Experienced sheet metal worker who has been in charge of sheet metal shop for eight years and who has been with canning factory for last 30 years wants a position with sheet metal shop. Factory shut down because of slack business. For last 22 years was superintendent of can making department. Age 56. Must work to keep contented. Wages or salary no object. Address C-37, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 5-3t

Situation Wanted—Would like a position with some manufacturing company, who makes poultry equipment or some sheet metal specialty, as superintendent, foreman or in experimental department. Nearly 20 years' experience with sheet metal and understand chickens. At present have a good design for a round brooder house. Address E. Haverstock, 3525 South Main street, South Bend, Indiana. 7-3t.

Situation Wanted—Shop man, partnership preferred; age 54. Efficient detailer and draftsman, experienced on hand and power equipment to produce any light and heavy sheet metal work coming to general jobbing shop of larger city, including heating and ventilating blower systems. Code installations. A number of years in full charge. Address C-46, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago Illinois. 7-3t.

Situation Wanted—After February 1. By a first-class mechanic. Can do plumbing, tinning, steam fitting, furnace work, and all-around job. Have worked over 30 years at the trades. Married. Want steady position the year around. Might consider renting; would prefer combination shop. Address C-27, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 4-3t

Situation Wanted—By sheet metal worker and furnace man, with 4 years' experience, willing to learn; married. Steady, sober and a hustler. Will go anywhere. Address Mr. Charles Nickel, 1451 Hackett Street, Beloit, Wisconsin. 4-3t

Situation Wanted—By a first-class tinner and furnace man who also does some plumbing. Fifty years of age, married and good habits. Address Guy Hasty, King City, Missouri. 5-3t

SITUATION WANTED

Situation Wanted—By sheet metal worker and furnace man with 15 years' experience on all class of work. Can layout and install furnaces and do heating engineering as well as cut most patterns. Experienced on factory maintenance and in sheet metal department of furnace factory. Address—C-41, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 6-3t

Situation Wanted—By first class combination man. Can handle men also layout and sell. Married. Steady worker. Strictly sober. Fully experienced in all branches of the trade. Am now employed as branch manager in a city of 65,000 for a large furnace company. Prefer Michigan. Address—C-43, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 6-3t

Situation Wanted—By a first class all around sheet metal worker and also a good layout man that knows how to handle men. Have had 25 years' experience at the trade. Want situation as working foreman. Can go anywhere. Address—George Collins, The Morr Dell, 144 Sixth Avenue South, St. Petersburg, Florida. 6-3t

Situation Wanted—By first-class tinner and furnace man. Can do inside and outside work. 25 years at the trade. Nothing but steady job the year around. Am married. Can do anything that comes in any tin shop. Address W. J. Mack, 106½ East Main Street, Saint Charles, Illinois. 4-3t

Situation Wanted—By first-class sheet metal worker and furnace man, 25 years' experience. Can also do plumbing. Address C-38, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 5-3t

Situation Wanted—By tinner and furnace man. Can do pump work and also help in hardware store. State wages in first letter. Address C-48, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Ill. 7-3t

Situation Wanted—A-1 sheet metal worker on cornice skylights and ventilation. Middle age. Will go any place. Can take charge of shop if required. Address—D. C. C. 1524½ Broadway, Mattoon, Illinois. 6-3t

Situation Wanted—Tinner and furnace man with 25 years' experience; west or southwest preferred. State wages in first letter. At liberty soon. Address C-44, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 7-3t.

TINNERS' TOOLS

For Sale—A bargain. A 4-foot J. M. Robinson steel cornice brake, capacity 14 gauge and lighter. Brake cost \$225.00; as good as new, has no nicks, and is in perfect condition. First offer for \$65.00 gets it. It is a fine tool for any sheet metal or radiator shop. Address Acme Sheet Metal Radiator Shop, Parkston, South Dakota. 7-3t.

For Sale—1 only 8 ft. and 1 only 10 ft. George A. Ohl Used Power Brakes. A bargain for someone. If interested address F. O. Schoedinger, 322-55 Mt. Vernon Avenue, Columbus, Ohio. 4-3t

For Sale—Good 10-foot used foot power squaring shear. If interested address C-45, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 7-3t.

TINNERS' TOOLS

Wanted—To buy a good set of tinner's tools including 8 ft. brake; state condition of tools, and give list of what you have. Also best cash price. J. S. Raymer & Son, Lena, Illinois. 6-3t

Wanted—Ten foot Dreis and Krump brake, 16 or 20 gauge capacity. Good condition. Write P. O. Box 332, Cedar Rapids, Iowa. 5-3t

BOOKS

Kinks and Labor Savings Methods for Sheet Metal Workers, Vols. 1 and 2—Volume I. There are hundreds of ideas and expedients, all contributed by sheet metal workers throughout the country, illustrated by cuts and original drawings. Cloth bound. Size 4 1/4 x 7 inches. Price \$1.00. Volume II written in same popular style as Volume I. Places at your disposal a comprehensive collection of ingenious ways of executing many practical tasks in much more simple way than if done in the regulation manner. Also contains special articles on Automobile Repairing; gives a very practical series of illustrated directions on erecting metal ceilings with ten guide rules which will save time, trouble and expensive mistakes. Price \$1.00. Order from Book Dept., AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

Exhaust and Blow Piping, by Hayes—Exhaust and Blow Piping has had an unusually big demand. A fresh supply is now off the press and is in our hands for immediate delivery. It has an invaluable treatise on the planning, cost, estimation and installation of fan piping in all its branches giving all necessary guidance in fan work blower and separator construction. 159 pages, 5x8. 51 figures. Cloth. \$2.00. Order from Book Dept., AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

Manual of Automotive Radiator Construction and Repair, by F. L. Curfman and T. H. Leet—Anyone interested in Radiator Repairing will find the 185 pages of practical instructions and the 120 illustrations showing actual construction and repairing a big help. In a condensed manner some four to five thousand answers to questions are given. It is thoroughly practical as both authors are men of wide experience in this work. Printed in large, easy to read type. Measures 5 1/2 x 9 inches. Price \$2.50. Order from Book Dept., AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

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HUBERT E. PECK
Patent Attorney

Barriester Bldg., WASHINGTON, D. C.

WANTED

Draftsman who understands design and layout of warm air heating plants in accordance with Standard Code by furnace manufacturer south of Ohio river. Position gives man who qualifies excellent opportunity to connect with high-grade company. Address W-6, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 5-3t

WANTED

Two experienced heating salesmen for Chicago trade. Must know boilers and furnaces. Splendid permanent opportunity for hard workers. Replies held confidential. Address C. H. B., 608 Hearst Bldg., Chicago, Illinois. 7-2t

SPECIAL NOTICES

SPECIALTY SALESMEN

calling on sheet metal and hardware trades, who can sell an idea, are wanted by progressive manufacturer to handle line on commission basis. To make it worth our while you must sell two customers a day, netting yourself \$20 per day; commissions paid on repeat orders. Names of well rated firms supplied to you. Order can be secured in thirty minutes. If you mean business send us territory covered; other lines handled; references and brief account of yourself. Address W-5, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 3-3t.

BRANCH MANAGERS WANTED

We have openings for two (2) experienced Branch Managers in our Chicago organization. We will consider only men with successful past heating sales records. Drawing account \$3,200 per year and commissions.

Bring records of your past experience with you and ask for Mr. Calhoun.

ROUND OAK HEATING CO.
711 South Wells Street
Chicago, Illinois

6-1t.

SPECIAL NOTICES

A Furnace Salesman

with practical furnace selling experience needed to cover desirable sales territories in Nebraska with complete heating line. Only a high grade man will be considered.

Arrangements will be concluded without delay. Write promptly and in confidence.

L. J. Mueller Furnace Co.,
Milwaukee, Wisconsin

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Wanted: — Furnace Supply Jobbers and side line salesmen to sell INSALUTE (Furnace Sealing Paint). The greatest thing ever offered to furnace installers to prevent gas and dirt from getting into the living rooms. Now used by hundreds of furnace dealers. We also manufacture white porcelain stove leg rests. Write for prices and literature.

Technical Products Company
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"Can you lay out work like that?" asked one employer. That's the kind of men I hire and give steady work. My men help me and I help them in this business."

HAVE YOU ABILITY WORTH \$3,000 A YEAR?

If you want to get into the Bigger Pay Class of Jobs we can qualify you for such Positions. All big concerns now say, "the Position pays (so much), qualify for it and you will get the money." Thus:

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SALES ENGINEERS	\$2,500 to \$12,000 a year
GENERAL MANAGERS	\$4,500 to \$20,000 a year
PRESIDENTS, range	\$6,000 to \$50,000 a year

JOURNEYMEN and SMALL SHOP OWNERS are lucky to average \$1,500 a year income, because they don't train themselves. Let us Coach YOU to be a WINNER. OUR COACHING QUALIFIES YOU FOR AN ENGINEERING DEGREE. We teach you in your Own Home. Personal, Clear, Direct. Write today, while you think about it. Select your Course.

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FOR men who know warm air heating or those willing to learn and use the vast knowledge that is available there is exceptional opportunity in the retail selling of quality warm air heating systems to home owners and building contractors.

The public is just beginning to learn that warm air heating is the best form of home heating—public response is always quick and the live dealers are reaping profits now.

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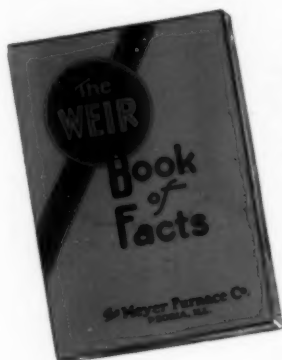
THE WEIR is in its 45th year—it is the top notch warm air furnace. It is sold only as the highest grade and by dealers who want only the best kind of business.

The WEIR furnace is making more business and more profits for more dealers each year.

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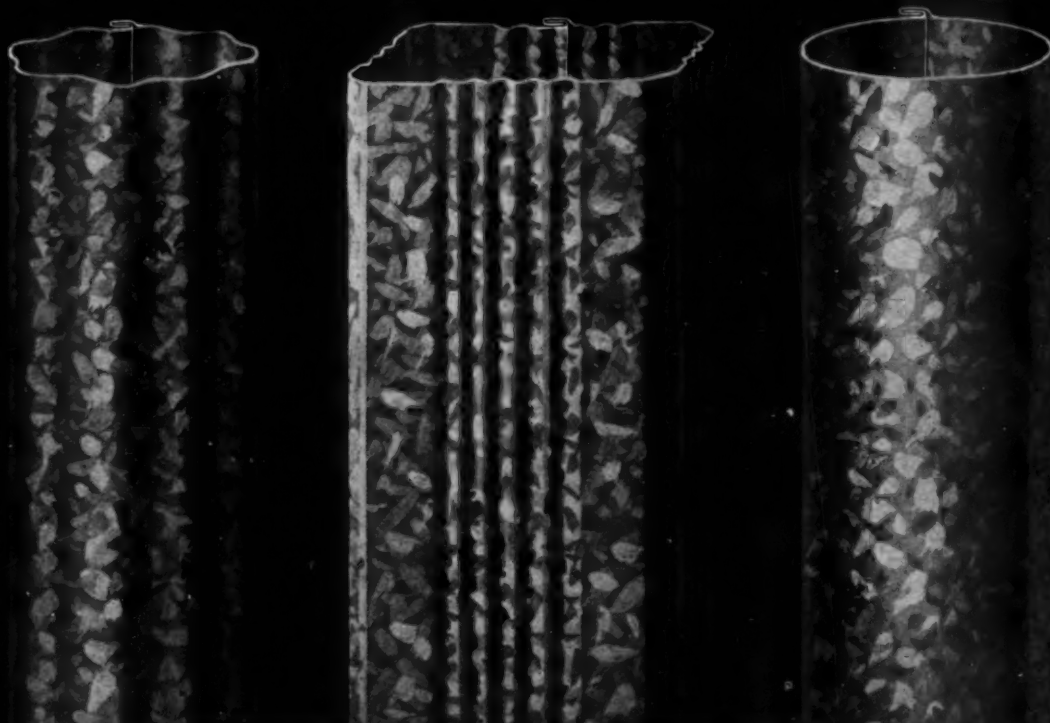
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